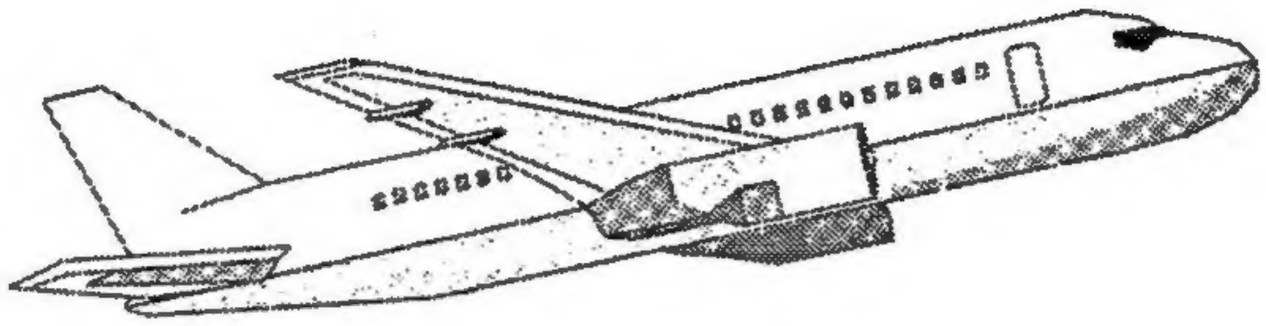
TO: HOLDERS OF COMPONENT MAINTENANCE MANUAL WITH ILLUSTRATED PARTS LIST FOR:

804265 SERIES
FLOW CONTROL UNITS

REVISION NO. 2 DATED MARCH 7, 1996

HIGHLIGHTS

Page No.	Description of Change	Effectivity
T-1/2	Changed page number format.	All Models
RR-1/2	Changed page number format. Added revision number and date.	All Models
RTR-1/2	Changed page number format.	All Models
SBL-1/2	Changed page number format.	All Models
LEP-1, LEP-2	Changed page number formats on front matter. Changed revision dates on appropriate pages.	All Models
TC-1/2	Changed page number format.	All Models
INTRO-1 thru INTRO-3/4	Changed page number formats. Due to an incorrect date on the Revision 1 page of INTRO-3/4, the revision bars from Revision 1 have been included.	All Models
6	Changed text for clarification of Surge Operation.	All Models
101, 102	Changed equipment name to match Figure 104.	All Models
110	Changed incorrect revision date on this page. Due to an incorrect date on the Revision 1 page, the revision bars from Revision 1 have been included.	All Models
704	Corrected Item number.	All Models
709	Inserted item number.	All Models
722	Corrected item name and item number.	All Models
801/802	Added page number column. Added item 35, IPL Fig. 1 to table.	All Models
902	Changed equipment name to match table on page 101.	All Models
1015	Corrected item name.	All Models
1020, 1021	Changed incorrect revision date on these pages. Due to incorrect dates on the Revision 1 pages, the revision bars from Revision 1 have been included.	All Models



COMPONENT MAINTENANCE MANUAL
WITH ILLUSTRATED PARTS LIST

FOR:

804265-01
804265-02
804265-03
804265-04

FLOW CONTROL UNITS

SCOTT®
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Lancaster, N.Y. 14086 Phone (716) 683-5100 Fax (716) 681-1089

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Retain this record in the front of the manual. On receipt of revisions, insert revised pages in the manual and enter revision number, date inserted, and initials.

REVISION NUMBER	REVISION DATE	DATE FILED	BY
1	Nov 1/95		
2	Mar 7/96		

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LIST OF EFFECTIVE PAGES

LIST OF EFFECTIVE PAGES (Continued)

Subject	Page	Date
Assembly	701	Nov 1/95
	702	Nov 30/94
	703	Nov 1/95
	704	Mar 7/96
	705	Nov 1/95
	706	Nov 30/94
	707	Nov 1/95
	708	Nov 30/94
	709	Mar 7/96
	710	Nov 30/94
	711	Nov 30/94
	712	Nov 1/95
	713	Nov 1/95
	714	Nov 1/95
	715	Nov 1/95
	716	Nov 1/95
	717	Nov 1/95
	718	Nov 1/95
	719	Nov 1/95
	720	Nov 1/95
	721	Nov 30/94
	722	Mar 7/96
Fits & Clearances	801/802	Mar 7/96
Special Tools, Fixtures and Test Equipment	901	Nov 30/94
	902	Mar 7/96
	903/904	Nov 30/94

Subject	Page	Date
Illustrated Parts List	1001	Nov 1/95
	1002	Nov 1/95
	1003	Nov 1/95
	1004	Nov 30/94
	1005	Nov 30/94
	1006	Nov 1/95
	1007	Nov 30/94
	1008	Nov 30/94
	1009	Nov 1/95
	1010	Nov 1/95
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	1015	Mar 7/96
	1016	Nov 30/94
	1017	Nov 30/94
	1018	Nov 30/94
	1019	Nov 1/95
	1020	Mar 7/96
	1021	Mar 7/96
	1022	Nov 30/94
	1023	Nov 30/94
	1024	Nov 30/94

TABLE OF CONTENTS

INTRODUCTION

1. Scope

This manual establishes the user maintenance, overhaul and service procedures for servicing the 804265-01, 804265-02, 804265-03 and 804265-04 Flow Control Units described herein.

This manual provides the following information:

A. Specifies proper safety regulations to be followed while performing service on oxygen equipment used in aviation applications.

B. Establishes the proper sequence of operations to be performed on the defined equipment.

C. Provides the user with data necessary to properly maintain, check, test and repair the equipment.

2. WARNINGS

The following WARNINGS are presented to inform the user of this manual of the requirements which shall be adhered to when performing service procedures on this equipment. Additional WARNINGS will be found in the procedural steps in the manual.

WARNING: ANY SERVICE OR OVERHAUL PERFORMED ON THIS APPARATUS SHALL BE DONE ONLY BY THOSE FACILITIES EXPERIENCED IN, OR BY PERSONNEL KNOWLEDGEABLE IN, AVIATION OXYGEN EQUIPMENT. IF NONE ARE KNOWN, CONTACT SCOTT AVIATION OR ITS DISTRIBUTORS FOR NAMES OF AUTHORIZED SERVICE CENTERS.

ALL PROCEDURES DESCRIBED IN THIS MANUAL SHALL BE PERFORMED IN AN AREA FREE OF OIL, GREASE, FLAMMABLE SOLVENTS OR OTHER COMBUSTIBLE MATERIALS. DUST, LINT, AND FINE METAL FILINGS ARE ALSO POTENTIAL COMBUSTIBLES THAT MIGHT IGNITE AND RESULT IN AN EXPLOSION WHEN EXPOSED TO PRESSURIZED OXYGEN.

DO NOT ALLOW OIL, GREASE, FLAMMABLE SOLVENTS, OR OTHER COMBUSTIBLE MATERIALS TO COME IN CONTACT WITH PARTS THAT WILL BE EXPOSED TO PRESSURIZED OXYGEN. DUST, LINT, AND FINE METAL FILINGS ARE ALSO POTENTIAL COMBUSTIBLES THAT MIGHT IGNITE AND RESULT IN AN EXPLOSION WHEN EXPOSED TO PRESSURIZED OXYGEN.

3. Product Support Services

Product support services for the equipment covered by this document is provided by Scott Aviation. The services include repair and overhaul, replacement parts, and technical documentation.

Scott Aviation (Code 53655)
A Figgie International Company
225 Erie Street
Lancaster, New York 14086-9502
U.S.A

Telephone: 716-683-5100
FAX: 716-681-1089

4. Verification

Section	Date
Testing and Fault Isolation	6/27/95
Disassembly	6/27/95
Assembly	6/27/95

5. Abbreviations

The following is a list of abbreviations found in this manual:

ABBREV.	DEFINITION OF TERM
AC	Alternating Current
ASSY	Assembly
BarGL	Barometric pressure at ground level
BKDN	Breakdown
cc	cubic centimeter
ccm	cubic centimeter per minute
COMP	Compensation
CRES	Corrosion Resistant Steel
cu. in.	cubic inches
DC	Direct Current
FIG	Figure
Hg	Mercury
in	inch
in•lbs	inch - pounds
ID	Identification or Internal Diameter
kg	kilogram
lpm	liters per minute
mg	milligram
mm	millimeter
MPa	MegaPascal
N•m	Newton meter
NHA	Next Higher Assembly
NP	Not Provisioned (also: Not Procurable)
NTPD	Normal Temperature Pressure Dry (70 °F, 760 mmHg, Dry)
O_2	Oxygen (gaseous)
OPT	Optional
psi	pounds per square inch
psia	psi absolute
psig	psi gauge
REPLS	Replaces
RF	Reference
SPN	Scott Part Number
SUPSDS	Supersedes
VAC	Volts Alternating Current
W/	With
W/O	Without

DESCRIPTION AND OPERATION

1. General

This section describes the 804265 Series Flow Control Units (FCU). The 804265-01 and 804265-03 FCU are basic units with the "surge" feature. The 804265-02 and 804265-04 FCU are basic units that do not have the "surge" feature. Refer to Figure 1 for an illustration of a typical FCU.

2. Description

The 804265 Series FCU are electrically operated units that regulate the pressure and control the flow of oxygen to the passenger emergency oxygen system, which is on the aircraft. When the FCU are actuated, an altitude pressure sensing device within the FCU automatically adjusts the pressure of oxygen to the passenger mask compartments.

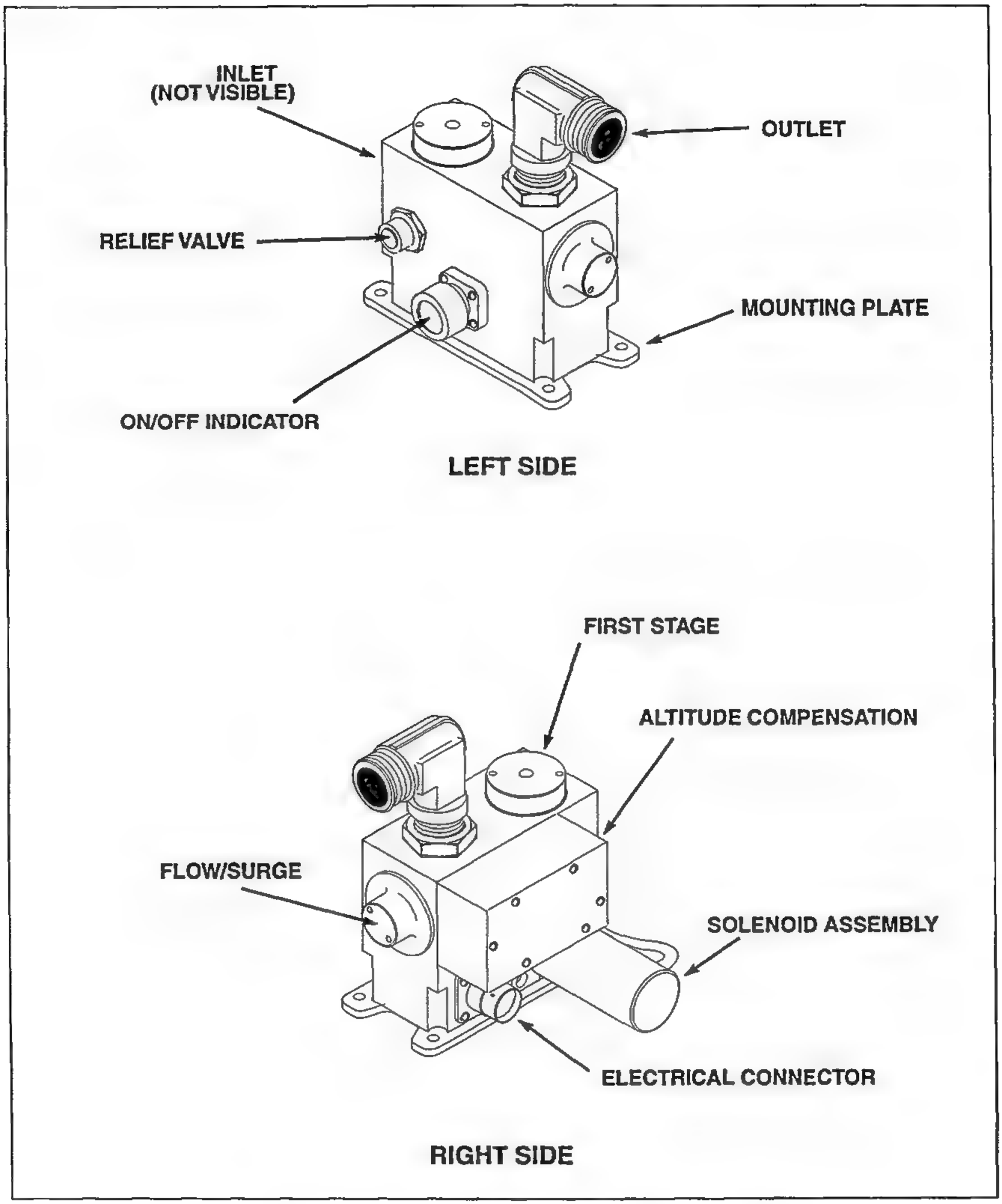
The FCU consist of a ported body that houses specialized groups of components to accomplish the pressure reducing and flow control functions. High-pressure oxygen enters the FCU through an inlet port on the rear surface of the body. The first stage components reduce the incoming high-pressure oxygen to a pressure of approximately 120 psig. The flow/surge components (second stage) further reduce the pressure and control the flow of oxygen to the downstream passenger mask compartments. The altitude compensation components sense the ambient altitude pressure and directly effect the outlet pressure from the second stage components.

An electrical connector mounted to the right side of the unit provides an interface with the aircraft electrical system and is connected to a solenoid operated actuation valve. Applying power to the appropriate pins of the electrical connector will either activate or shutdown operation of the unit.

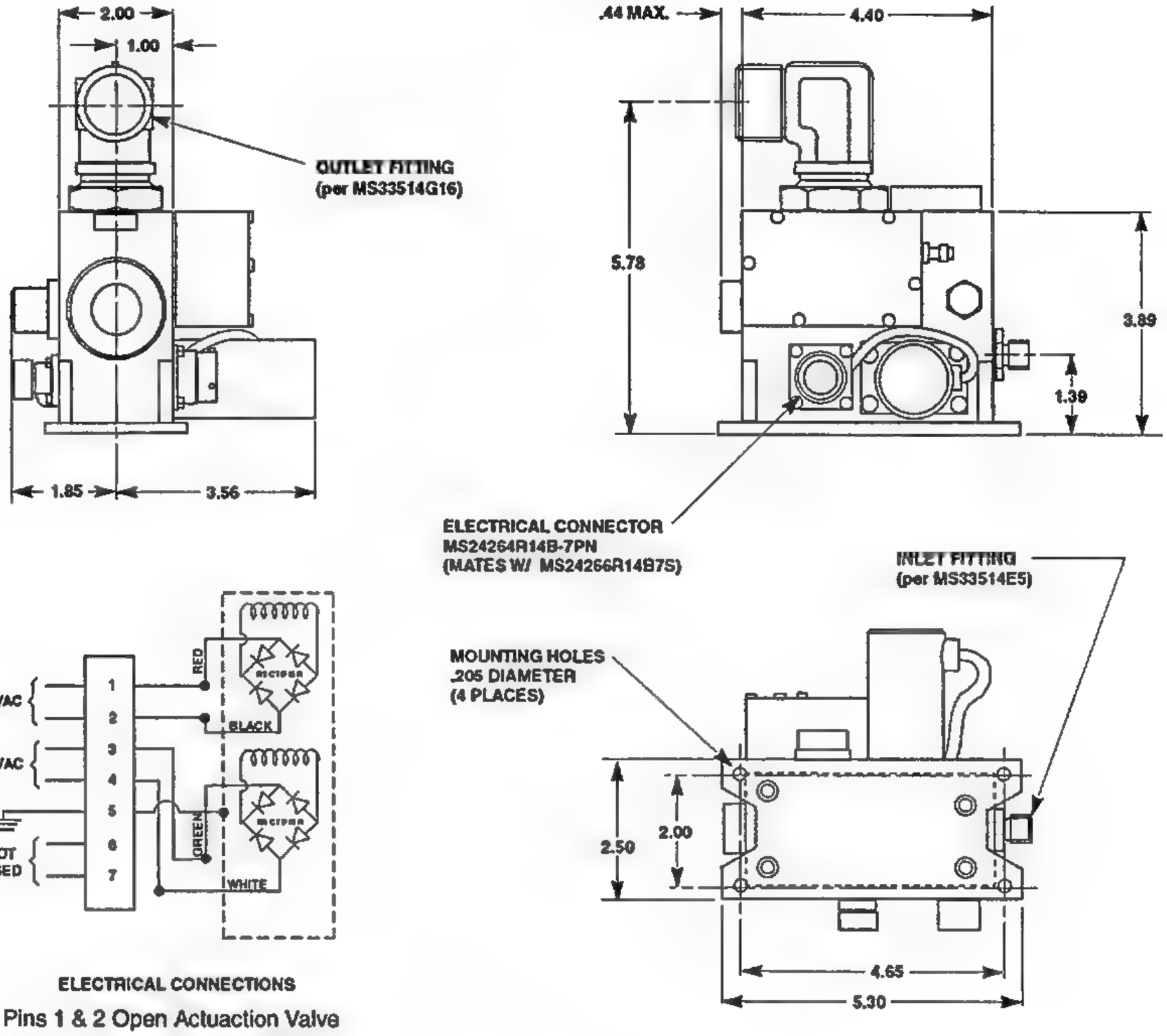
The 804265-01 & 804265-02 FCU have an ON/OFF indicator mounted on the left side of the FCU and have a lens through which "ON" and "OFF" flags are visible to indicate the operational status of the unit.

All configurations of the FCU are equipped with a relief valve that will vent to atmosphere should the first stage pressure exceed the maximum allowable working pressure. A mounting plate secured to the bottom surface of the unit allows the FCU to be mounted in a stationary position inside the aircraft.

The leading particulars for the 804265 Series FCU are presented in Figure 2.



FLOW CONTROL UNIT (804265-01 Illustrated)
Figure 1



ELECTRICAL CONNECTIONS

Pins 1 & 2 Open Actuaction Valve
Pins 3 & 4 Close Actuation Valve

Operational Altitude:	43,100 feet (13,137 meters) - max.
Inlet Pressures:	100 - 2000 psig (0.69 - 13.8 MPa)
Outlet Pressures: (approximate)	10 - 47 psia (0.07 - 0.32 MPa)
Flow Rates (NTPD): (approximate)	25 - 1570 lpm
Pressure Relief Valve	
Cracking Pressure:	140 ±10 psig (0.97 ± 0.07 MPa)
Reseat Pressure:	100 psig (0.69 MPa) - min.
Weight: (approximate)8	9.7 lbs (4.4 kg) - max.

Leading Particulars (804265-01 Illustrated)
Figure 2

3. Basic Operation

A. Without Surge

High-pressure oxygen enters the 804265-02 and 804265-04 Flow Control Units (FCU) through the INLET port and passes through the normally open first stage pressure reducer valve. After passing through the first stage pressure reducer the incoming high-pressure is reduced to approximately 120 psig. The lowered first stage pressure is now available at the normally closed main flow control valve and the normally closed actuation valve. Refer to Figure 3.

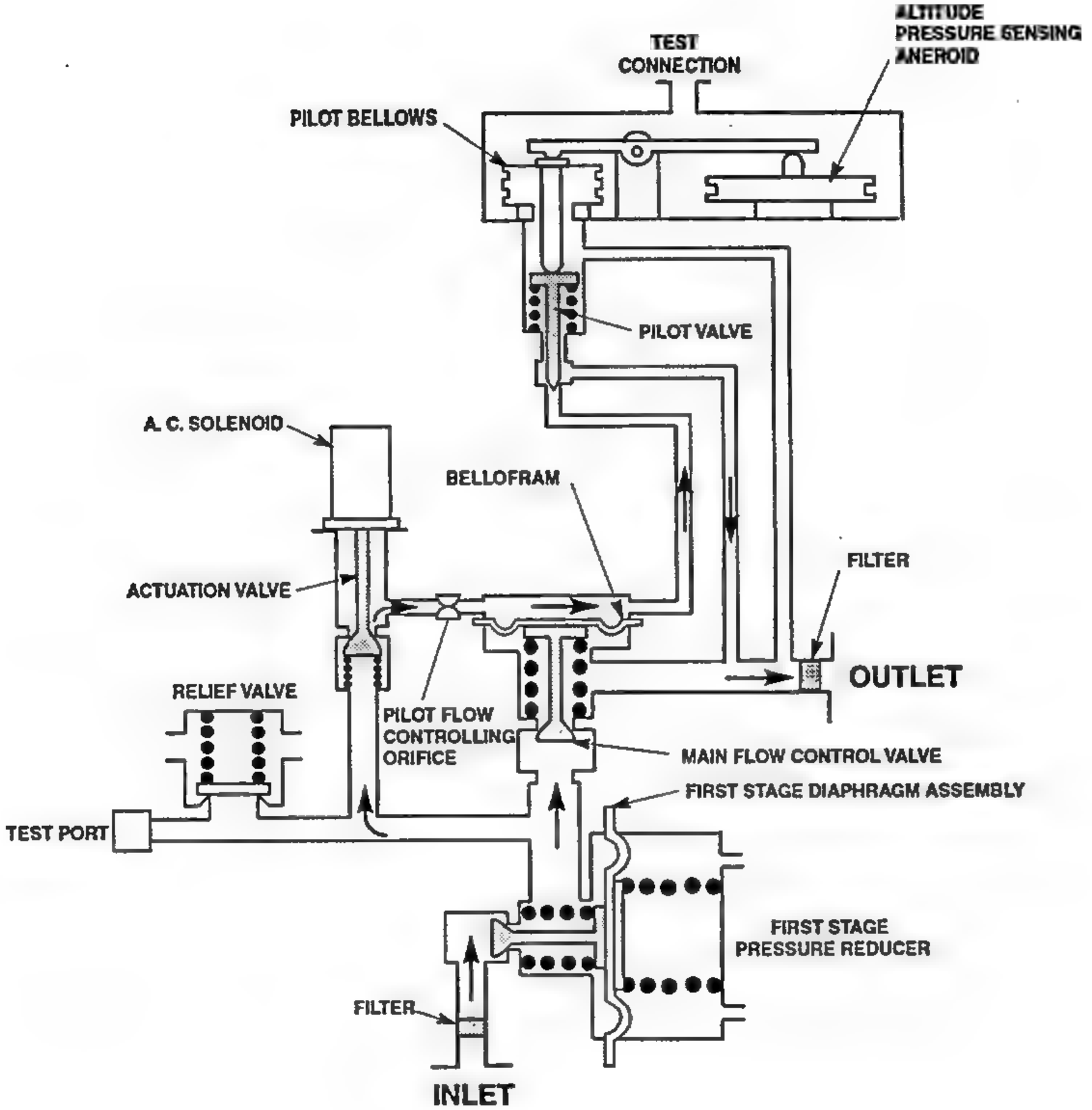
With no demand being made on the FCU, pressure on the downstream side of the first stage pressure reducer increases and exerts a force on the first stage diaphragm assembly. The force exerted on the diaphragm assembly forces the normally open first stage pressure reducer valve to close and prevents more high-pressure oxygen from entering the FCU.

When electrical power is applied to the solenoid-operated actuation valve, the valve opens and allows first stage pressure to pass through the pilot flow controlling orifice that restricts the flow to 2.0-2.5 lpm. The reduced flow, first stage pressure then passes through the main flow control valve (second stage), through the pilot valve and finally to the OUTLET of the FCU. The pressure passing through the second stage exerts a force on the second stage diaphragm (also referred to as BELLOFRAM[1]) and forces the main flow control valve to open and allows oxygen to flow through the second stage to the OUTLET of the FCU. The amount that the main flow control valve opens is directly related to the level of pressure that is exerted on the top of the Bellofram which in turn is dependent on the size of the orifice created by the pilot valve.

During normal operation, a sampling of the outlet pressure of the FCU is applied to the pilot bellows at the top of the pilot valve. If the outlet pressure is greater than the demand, the pilot bellows assembly allows the pilot valve to rise thereby increasing the size of the pilot valve orifice. The increase in the size of the pilot valve orifice decreases the pressure in the line between the second stage and the pilot valve, and allows the Bellofram of the second stage to rise which allows the main flow control valve to close further and decrease the flow of oxygen to the OUTLET of the FCU. If the outlet pressure is less than the demand, the pilot bellows assembly forces the pilot valve downward to decrease the size of the pilot valve orifice. The decrease in the size of the pilot valve orifice increases the pressure in the line between the second stage and the pilot valve, and forces the Bellofram of the second stage downward to further open the main flow control valve and increase the flow of oxygen to the OUTLET of the FCU.

A relief valve monitors the first stage pressure within the FCU and will vent excess pressure to atmosphere should the pressure rise above 140 psig.

[1] Bellofram is a registered trademark of Bellofram Corp., Newell, WV, USA.



Flow Control Unit - Without Surge (804265-02 and 804265-04)
Figure 3

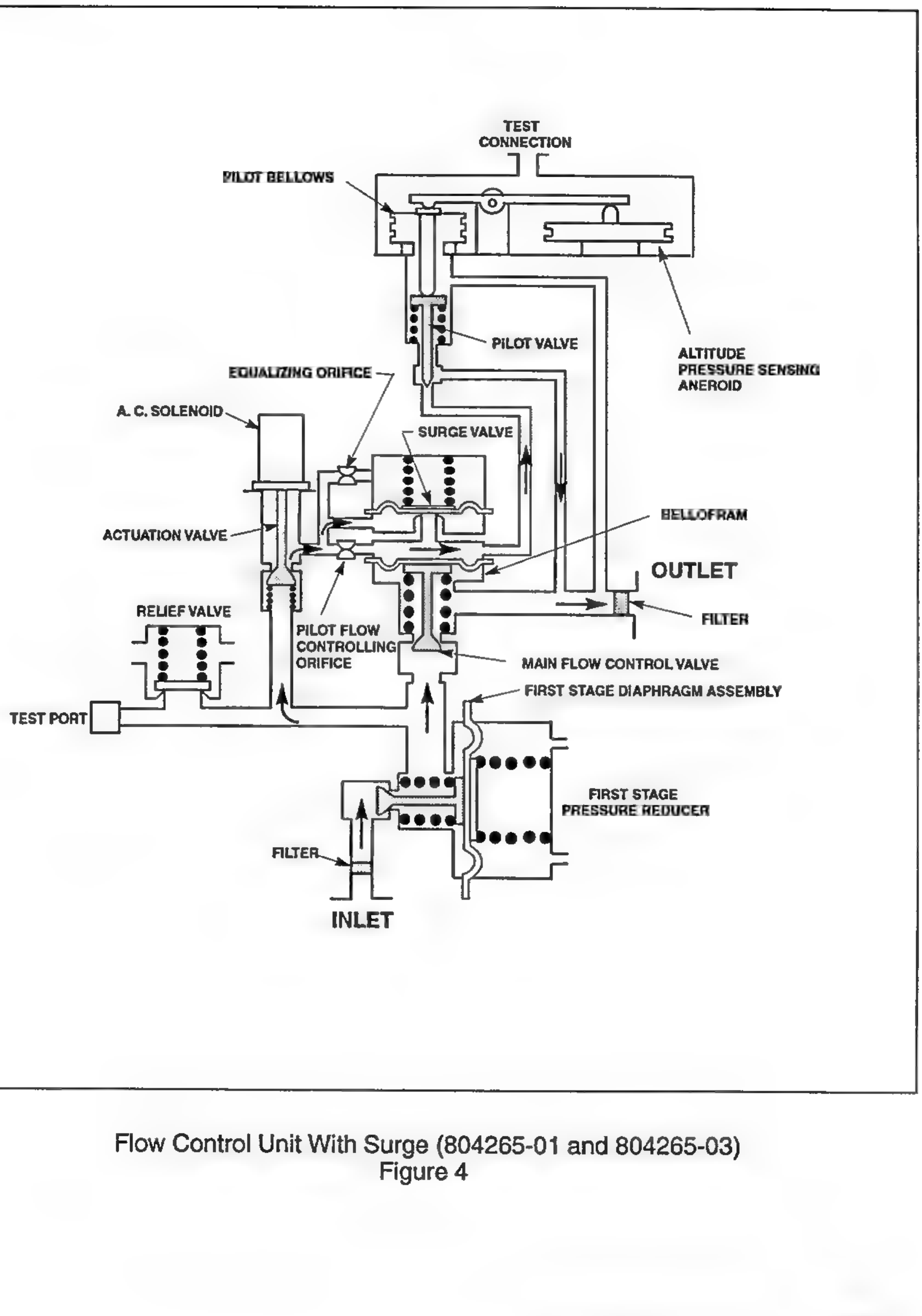
3. Basic Operation (Continued)

B. Surge Operation

The operation of the 804265-01 and 804265-03 Flow Control Units (FCU) are identical to that of the 804265-02 and 804265-04 FCU but also have the "surge" feature. The "surge" feature allows an initial high volume flow of oxygen to fill the oxygen distribution lines that serve the passenger mask compartments. After the initial surge of oxygen has filled the distribution lines, operation of the unit is identical to the basic operation described in paragraph 3.A. of this Section. Refer to Figure 4.

When electrical power is applied to the solenoid-operated actuation valve, the valve opens and allows first stage pressure to enter the surge valve via the pilot flow controlling orifice and through an un-metered port located immediately below the surge valve diaphragm. The pressurized oxygen entering the surge valve through the un-metered port forces the surge valve diaphragm upward and the poppet of the main flow control valve to the open position. This allows high-volume, pressurized oxygen to pass through the main flow control valve and immediately to the filtered outlet of the unit to fill the oxygen distribution lines in the aircraft.

Upon initiating the flow of oxygen through the solenoid operated actuation valve, oxygen also enters the top portion of the surge valve through an equalizing orifice located above the surge diaphragm. Gradually the pressure on the top side of the surge diaphragm, combined with the effects of the bias spring, forces the diaphragm downward to discontinue the flow of high pressure oxygen that forces the main flow control valve open. The duration of the surge portion of the operating cycle lasts approximately four seconds and introduces approximately 53 liters (3200 cu. in.) of oxygen to the oxygen distribution lines of the aircraft.



Flow Control Unit With Surge (804265-01 and 804265-03)
Figure 4

TESTING AND FAULT ISOLATION

1. General

This section contains the testing and fault isolation procedures used to evaluate performance of the 804265 Series Flow Control Units (FCU). Should an FCU need repair and/or have replacement parts installed, the FCU must pass the appropriate testing requirements before the unit is made serviceable. Should a failure occur during testing procedures, refer to the troubleshooting table (Table 104) for fault isolation techniques.

2. Special Tools and/or Test Equipment

Special tools and/or test equipment required to evaluate performance of the 804265 Series Flow Control Units are presented in Table 101.

Table 101
Special Tools and/or Test Equipment

NOMENCLATURE	PART NO.	MANUFACTURER (W/ Vendor Code)
Regulator, Oxygen (2 required)	PR55-1A51H9L151	Vemco Corp. (Go, Inc.) San Dimas, CA 91773-2925 (V62527)
Pressure Gauge (0-2000 psi) (2 required) (0-200 psi)	1403 Series 1403 Series	Ametek (U.S. Gauge) Sellersville, PA 18960 (V61349)
Flow Control Valve (2 required)	B18VF8	Whitey Co. Highland Heights, OH 44143 (V12623)
Flowmeter (200-2000 lpm) Flowmeter (0.5-50 ccm)	1110CM41CGAA 1110CC21ABGAA	Brooks Instruments Statesboro, GA 30458 (V91556)
Hipot Tester and Megohmeter (AC/DC)	Model 303A	Hipotronics, Inc. Brewster, NY 10509 (V25284)
AC Power Supply (Variable, 0-280 VAC)	Type 3PN216C	Superior Electric Co. Bristol, CT (V58474)
Solenoid Blank (Pilot Circuit Adapter Plate)	804265-S58-1	Scott Aviation Lancaster NY 14086 (V53655)
NOTES: Equivalent test equipment may be substituted.		

3. Test Materials

A list of consumable test materials is presented in Table 102. Equivalent materials may be substituted.

Table 102
Consumable Test Materials

MATERIAL (Code)	DESCRIPTION	MANUFACTURER (W/ VENDOR CODE)
Oxygen	MIL-O-27210, Type 1	Local Vendor
Rust Inhibiting Leak Test Solution (V72658)	Sodium Chromate; 5cc per gallon of water	Allied Signal Corp. Morristown, NJ (V72658)

4. Test Sequence

Unless otherwise specified, functional testing of the 804265 Series Flow Control Units shall be performed in the order in which they are presented within this document.

5. Electrical Testing

A. Overvoltage Test

Using a variable AC Power Supply (see Table 101) apply ten 180 VAC pulses of 0.5 second duration with 5 second intervals between pulses. Apply the voltage as indicated below:

(1) Attach the positive (+) lead of the variable AC Power Supply to pin 1 of the electrical connector (5, IPL Figure 5) and the negative (–) lead to pin 5 (Ground) of the connector. Apply the required number of electrical pulses at the pulse frequency indicated above. There shall be no failure of components.

(2) Attach the positive (+) lead of the variable AC Power Supply to pin 3 of the electrical connector (5) and the negative (–) lead to pin 5 (Ground) of the connector. Apply the required number of electrical pulses at the pulse frequency indicated above. There shall be no failure of components.

(3) Attach the positive (+) lead of the variable AC Power Supply to pin 2 of the electrical connector (5) and the negative (–) lead to pin 5 (Ground) of the connector. Apply the required number of electrical pulses at the pulse frequency indicated above. There shall be no failure of components.

(4) Attach the positive (+) lead of the variable AC Power Supply to pin 4 of the electrical connector (5) and the negative (–) lead to pin 5 (Ground) of the connector. Apply the required number of electrical pulses at the pulse frequency indicated above. There shall be no failure of components.

NOTE: Acceptable performance of the electrical components during subsequent testing shall be proof of passing the overvoltage testing.

5. Electrical Testing (Continued)

B. Dielectric Strength Test

The dielectric strength test is included in this CMM for reference purposes only. Be sure to observe the cautionary notes provided below if testing is to be performed.

CAUTION: REPEATED EXPOSURE TO THE HIGH VOLTAGES APPLIED DURING DIELECTRIC TESTING HAS A CUMULATIVE DETRIMENTAL EFFECT ON THE TESTED ITEMS.

IF DIELECTRIC TESTING OF THE UNIT IS DEEMED NECESSARY, PERFORM THE TEST AT REDUCED VOLTAGE LEVELS TO MINIMIZE THE CUMULATIVE DETRIMENTAL EFFECTS ON THE COMPONENTS.

Using a Hipot Tester and Megohmeter (see Table 101) sequentially apply 1000 volts between pins 1, 2, 3 and 4 of the electrical connector (5, IPL Figure 5) and pin 5 (Ground) for a minimum of one minute. Upon application and removal of the voltage there shall be no evidence of arcing, sparking or leakage current exceeding 2.0 milliamps.

6. Test Procedures

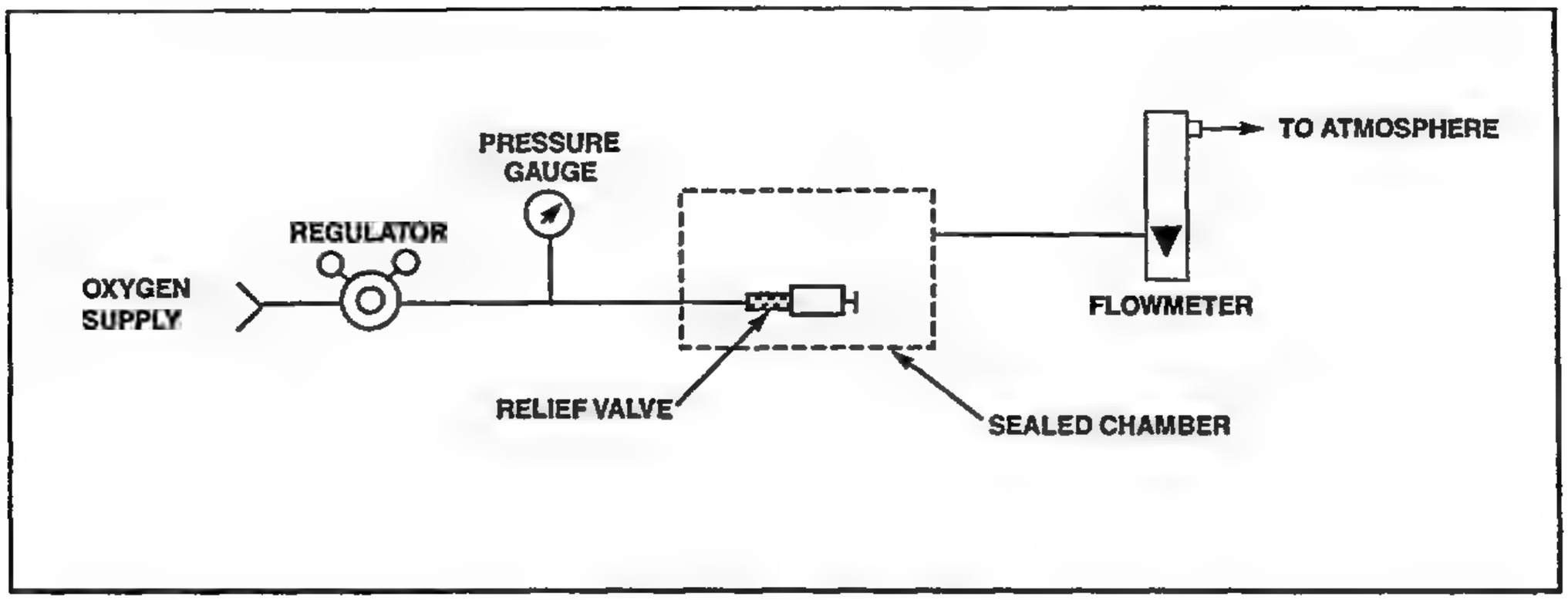
WARNING: IN ALL PROCEDURES LISTED BELOW, OXYGEN IS SPECIFIED AS THE TEST GAS. WATER PUMPED NITROGEN OR OIL-FREE AIR MAY BE SUBSTITUTED, BUT TEST RESULTS MUST BE CONVERTED PRIOR TO BEING COMPARED WITH TEST RESULTS SPECIFIED FOR OXYGEN. DO NOT, UNDER ANY CIRCUMSTANCES, USE OIL PUMPED GAS AS THIS WILL CAUSE CONTAMINATION OF THE FLOW CONTROL UNIT AND TEST EQUIPMENT. OIL, EVEN IN MINUTE QUANTITY, COMING IN CONTACT WITH OXYGEN MAY CAUSE AN EXPLOSION OR FIRE.

A. Relief Valve Test:

NOTE: Remove the relief valve assembly (25, IPL Figure 1) from the 804265 Series Flow Control Units prior to testing.

(1) Attach test equipment to relief valve assembly as shown in Figure 101.

(2) SLOWLY open regulator to gradually increase pressure that is applied to the relief valve assembly. The relief valve shall open at 140 ±10 psig (0.97 ± 0.07 Mpa); verify pressure, on the pressure gauge, required to open relief valve. Verify output flow (relief valve opening) by observing the flowmeter (200-2000 lpm).



Test Setup - Relief Valve
Figure 101

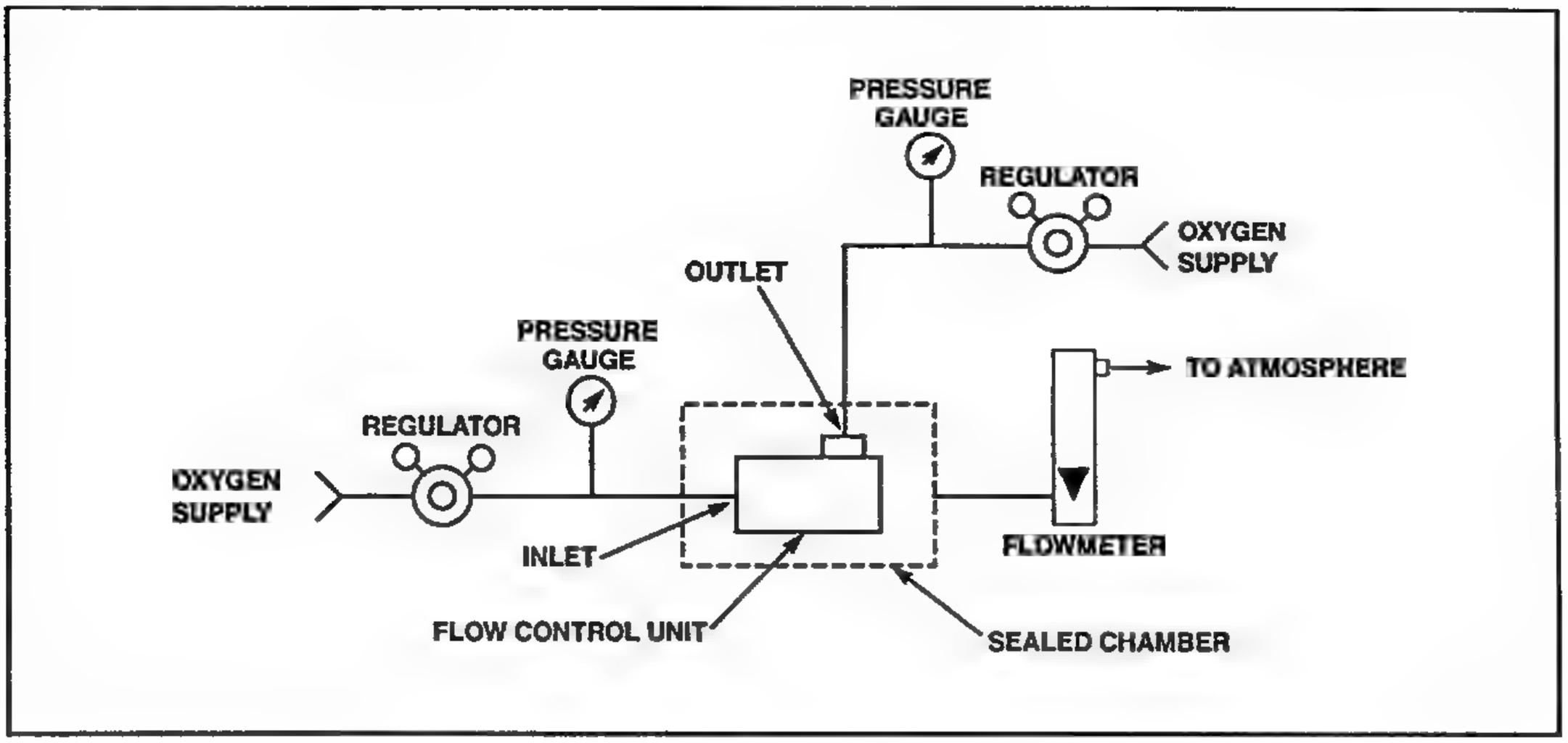
6. Test Procedures (Continued)

   A. Relief Valve Test (Continued):

      (3) Using the regulator, increase pressure applied to the relief valve assembly to establish a flow rate of 1270 lpm NTPD (Normal Temperature Pressure Dry) as indicated on the flowmeter. The pressure required to maintain this flow rate shall not exceed 170 psig (1.17 MPa); verify pressure on pressure gauge.

      (4) Using the regulator, reduce the pressure that is applied to the relief valve assembly to a minimum pressure of 100 psig (0.7 MPa). Relief valve assembly shall re-seat at this pressure; leakage through the relief valve assembly shall not exceed 0.010 lpm (10 ccm) NTPD as indicated on the flowmeter (0.5-50 ccm).

      (5) Relieve system pressure and remove relief valve assembly from test setup.



Test Setup - External Leakage
Figure 102

6. Test Procedures (Continued)

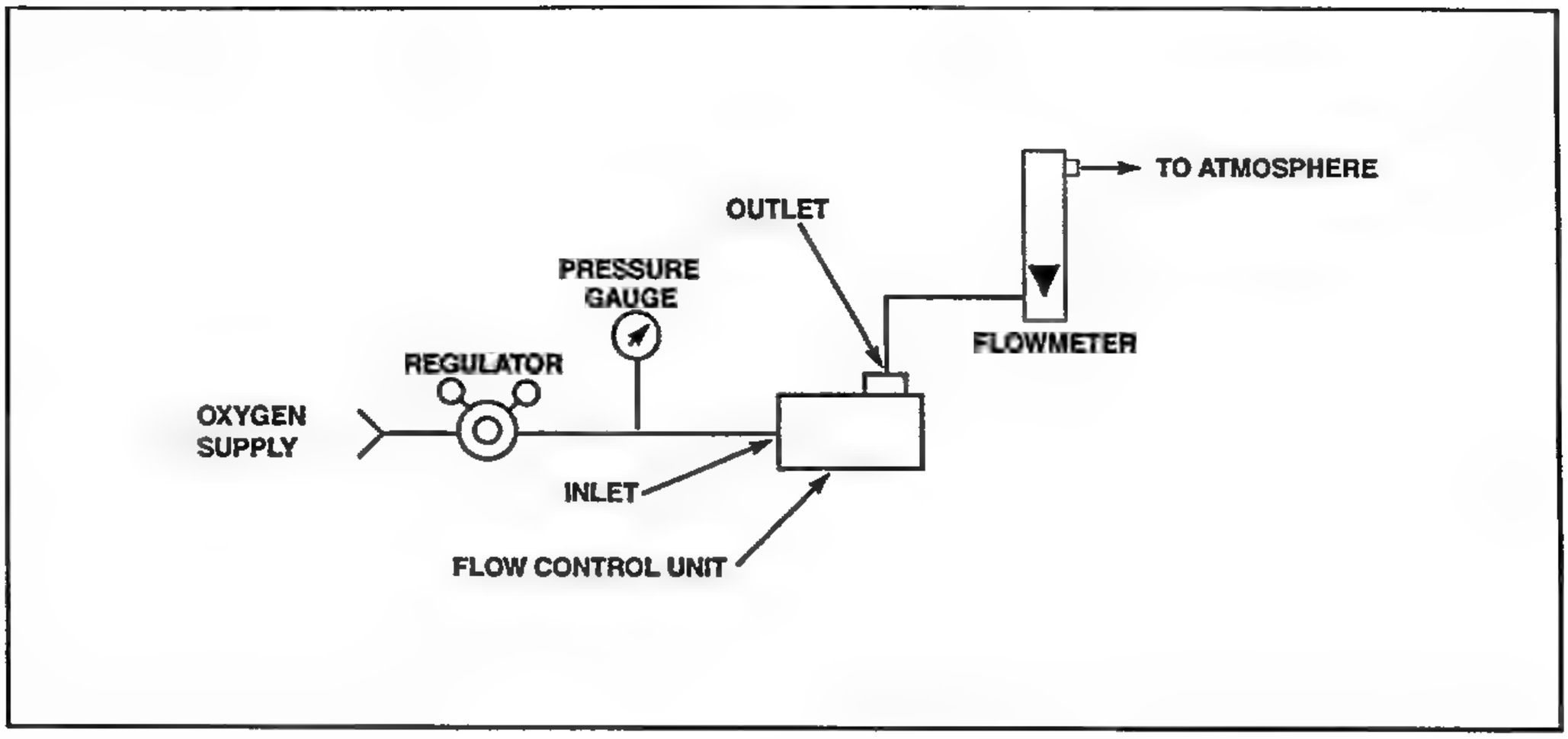
B. External Leakage Test

(1) Attach test equipment to Flow Control Unit as shown in Figure 102.

(2) Apply 2000 psig (13.8 MPa) to the INLET port of the Flow Control Unit; at the same time, apply 65 psig (0.45 MPa) to the OUTLET port of the Flow Control Unit. Maintain these applied pressures for a minimum of five minutes.

(3) Observe flowmeter (0.5-50 ccm). External leakage from the Flow Control Unit shall not exceed 0.010 lpm (10 ccm) NTPD.

NOTE: If the measured external leakage exceeds 0.010 lpm (10 ccm) NTPD remove sealed chamber that covers the Flow Control Unit. Apply a rust inhibiting leak test solution (see Table 102) at the junction of all externally mounted components and the body of the Flow Control Unit to locate the exact point(s) of leakage. Repair the leak, then retest.



Test Setup - Internal Leakage
Figure 103

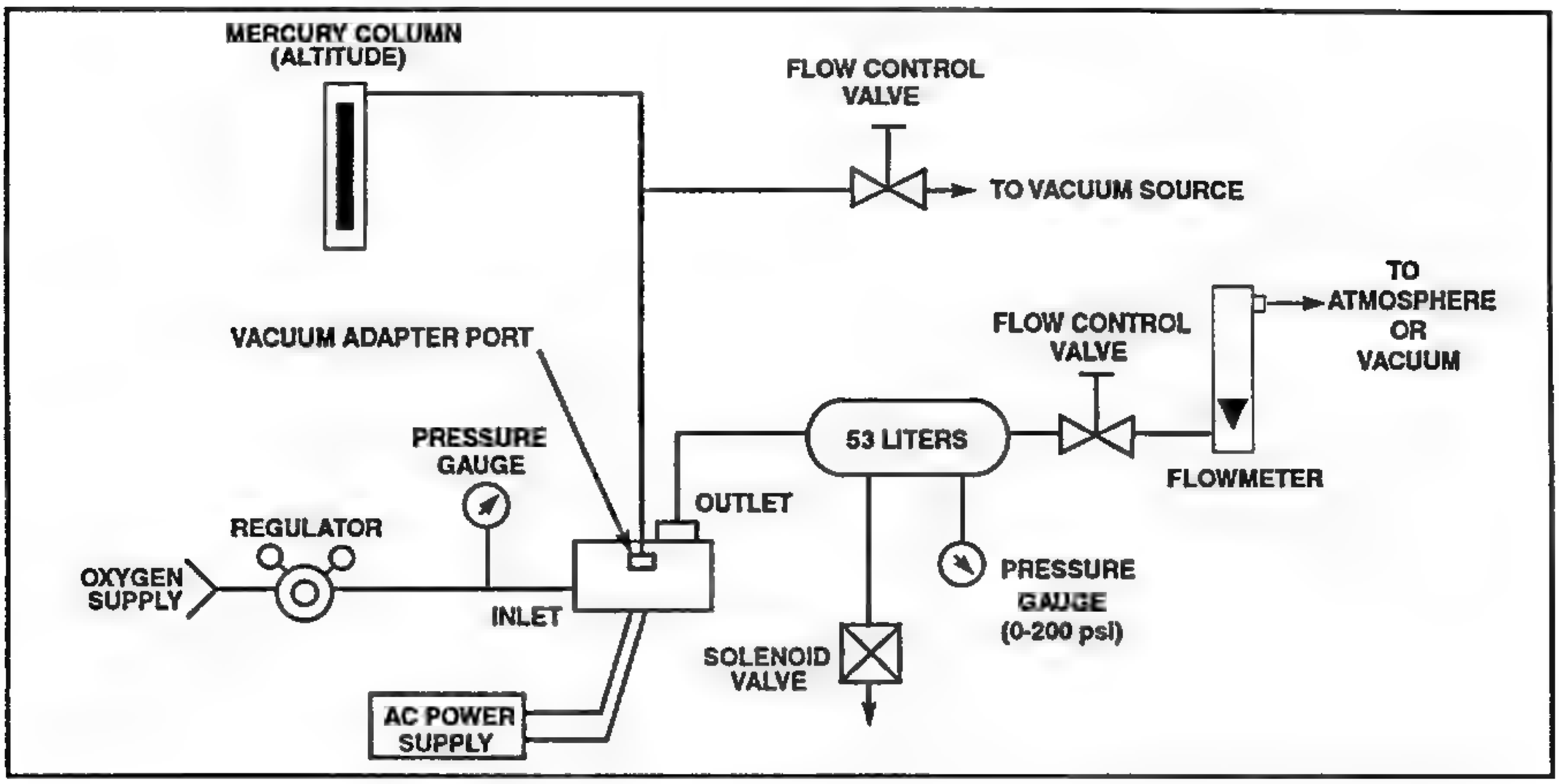
6. Test Procedures (Continued)

C. Internal Leakage Test

(1) Attach test equipment to Flow Control Unit as shown in Figure 103.

(2) Apply 2000 psig (13.8 MPa) to the INLET port of the Flow Control Unit for 15 minutes.

(3) Observe flowmeter (0.5-50 ccm). Leakage through the Flow Control Unit as measured at the OUTLET port, shall not exceed 0.005 lpm (5 ccm) NTPD.



Test Setup - Pressure Tests
Figure 104

6. Test Procedures (Continued)

D. Pressure Surge Test (804265-01 and 804265-03 ONLY)

(1) Attach test equipment to Flow Control Unit as shown in Figure 104.

(2) Apply 600 psig (4.12 MPa) to the INLET port of the Flow Control Unit.

(3) Using the flow control valve, positioned between the Flow Control Unit and the vacuum source, adjust the vacuum to produce an altitude of 13,250 to 14,500 feet (8.9 to 8.5 psia). Verify altitude setting on mercury column.

(4) Using the AC power supply, apply 115 ± 5 VAC to pins 1 and 2 of the electrical connector (5, IPL Figure 5) to actuate the Flow Control Unit.

(5) Observe pressure gauge mounted on the closed, 53 liter container. The 53 liter container shall pressurize to 50 psig (0.34 MPA) in four seconds, or less.

(6) Discontinue application of pressurized oxygen to the INLET port of the Flow Control Unit and discontinue application of electrical power to pins 1 and 2 of the electrical connector.

6. Test Procedures (Continued)

D. Pressure Surge Test (Continued)

(7) Using the flow control valve, positioned between the Flow Control Unit and the vacuum source, adjust the vacuum to reduce the altitude to ground level. Verify altitude setting on mercury column.

(8) Using the AC power supply, apply 115 ± 5 VAC to pins 3 and 4 of the electrical connector (5, IPL Figure 5) to de-actuate the Flow Control Unit.

(9) SLOWLY open the flow control valve that is located immediately downstream of the 53 liter container. Accumulated pressure contained in the closed container will now bleed to atmosphere. Allow unit to remain inactive for one minute to enable pilot circuit to completely bleed down prior to re-surging the system.

(10) Repeat Steps 2 through 9 of this test using 1000 psig (6.9 MPa) applied to the INLET port of the Flow Control Unit.

(11) Repeat Steps 2 through 9 of this test using 2000 psig (13.8 MPa) applied to the INLET port of the Flow Control Unit.

E. Pressure Surge Duration Test (804265-01 and 804265-03 ONLY)

(1) Attach test equipment to Flow Control Unit as shown in Figure 104.

(2) Apply 200 psig (1.38 MPa) to the INLET port of the Flow Control Unit.

(3) Using the flow control valve, positioned between the Flow Control Unit and the vacuum source, adjust the vacuum to produce an altitude of 30,000 feet (30.2 to 33.2 psia outlet pressure). Verify altitude setting on mercury column.

(4) Using the AC power supply, apply 115 ± 5 VAC to pins 1 and 2 of the electrical connector (5, IPL Figure 5) to actuate the Flow Control Unit.

(5) Observe pressure gauge mounted on the closed, 53 liter container. When the container mounted pressure gauge indicates an internal container pressure of 45-50 psig (0.34 MPA) open the flow control valve that is located immediately downstream of the 53 liter container. Monitor the time required for the internal pressure of the container to decay to the regulated pressure of 33.2 to 30.2 psia (0.229 to 0.208 MPa). The time required for the pressure decay shall be 15 to 30 seconds.

6. Test Procedures (Continued)

F. Electrical Actuation and Reset Test

(1) Attach test equipment to Flow Control Unit as shown in Figure 104.

(2) Apply 600 psig (4.14 MPa) to the INLET port of the Flow Control Unit.

(3) Using the flow control valve, positioned between the Flow Control Unit and the vacuum source, adjust the vacuum to reduce the altitude to ground level. Verify altitude setting on mercury column.

(4) Using the AC power supply, apply 115 ± 5 VAC to pins 1 and 2 of the electrical connector (5, IPL Figure 5) to actuate the Flow Control Unit.

(5) Using the AC power supply, apply 115 ± 5 VAC to pins 3 and 4 of the electrical connector (5, IPL Figure 5) to de-actuate the Flow Control Unit. The Flow Control Unit shall remain in the "OFF" position; no test gas shall flow from the OUTLET port of the Flow Control Unit.

(6) Repeat Steps (4) and (5) of this test with an altitude of 14,000 feet (12.8 to 9.8 psia outlet pressure). Verify altitude setting on mercury column.

(7) Repeat Steps (4) and (5) of this test with an altitude of 20,000 feet (16.5 to 13.5 psia outlet pressure). Verify altitude setting on mercury column.

(8) Repeat Steps (4) and (5) of this test with an altitude of 43,100 feet (45.3 to 42.3 psia outlet pressure). Verify altitude setting on mercury column.

(9) Repeat Steps (3) thru (9) of this test and apply 2000 psig (13.8 MPa) to the INLET port of the Flow Control Unit.

G. Altitude Compensated Regulation Test

(1) Attach test equipment to Flow Control Unit as shown in Figure 104.

(2) Apply inlet pressures together with the corresponding altitudes of Table 103 to the Flow Control Unit. Vary the outlet flows, between the "HIGH" and "LOW" values stated for the given pressure/altitude; outlet pressures indicated on the pressure gauge immediately downstream of the Flow Control Unit outlet port shall be within the limits specified in Table 103.

6. Test Procedures (Continued)

Table 103
Altitude Compensated Regulation

INLET PRESSURE (psig / MPa)	ALTITUDE (feet / meters)	OUTLET FLOW lpm NTPD O_2		ALLOWABLE OUTLET PRESSURE (psia / MPa)	
		LOW	HIGH	LOW	HIGH
2000 / 13.8	43,100 / 13,140	25	1570	43.6 / .301	46.6 / .322
	30,000 / 9,144	25	1180	30.2 / .208	33.2 / .229
	20,000 / 6,096	25	680	14.4 / .099	17.4 / .120
	14,000 / 4,267	25	360	10.0 / .069	13.0 / .090
	10,000 / 3,048	25	360	11.3 / .078	12.8 / .088
	Ground Level	25	360	1.2 psig (0.008 MPa) above BarGL*	2.7 psig (0.019 MPa) above BarGL*
500 / 3.45	43,100 / 13,140	25	1570	43.6 / .301	46.6 / .322
	30,000 / 9,144	25	1180	30.2 / .208	33.2 / .229
	20,000 / 6,096	25	680	14.4 / .099	17.4 / .120
	14,000 / 4,267	25	360	10.0 / .069	13.0 / .090
	10,000 / 3,048	25	360	11.3 / .078	12.8 / .088
	Ground Level	25	360	1.2 psig (0.008 MPa) above BarGL*	2.7 psig (0.019 MPa) above BarGL*
100 / .69	14,000 / 4,267	20	---	9.8 / .068	12.8 / .088

BarGL* = Barometric pressure at ground level during testing of unit.

H. Minimum Inlet Pressure Test

(1) Attach test equipment to Flow Control Unit as shown in Figure 104.

(2) Apply 100 psig (0.67 MPa) to the INLET port of the Flow Control Unit.

(3) Using the AC power supply, apply 115 ± 5 VAC to pins 1 and 2 of the electrical connector (5, IPL Figure 5) to actuate the Flow Control Unit.

(4) Using the flow control valve, positioned between the Flow Control Unit and the vacuum source, adjust the vacuum to produce an altitude of 14,000 feet (9.8 to 12.8 psia). Verify altitude setting on mercury column.

(5) Attach a vacuum source to the outlet of the flowmeter. Establish and maintain an outlet flow of 20 lpm from the outlet port of the Flow Control Unit. The outlet pressure at this flow rate shall be in accordance with Table 103.

(6) Using the AC power supply, apply 115 ± 5 VAC to pins 3 and 4 of the electrical connector (5, IPL Figure 5) to deactivate the Flow Control Unit.

6. Test Procedures (Continued)

J. Pilot Circuit Pressure/Leakage Test

NOTE: The Pilot Circuit Pressure/Leakage Test shall only be performed after all functional testing has been completed.

NOTE: Ensure that the Flow Control Unit is in the "OFF" mode

(1) Remove solenoid assembly (20, IPL Figure 5) from flow control body (150 thru -150C, IPL Figure 1) as required. Install pilot circuit adapter plate, part number 804265-S58-1, in place of the removed solenoid assembly.

(2) Remove test plug (50) and preformed packing (55) from the first stage test port on flow control body (150 thru -150C). Attach oxygen supply to the first stage test port.

(3) Apply 90-95 psig (0.62-0.66 MPa) to the first stage test port. Allow pressure to stabilize; verify pressure on oxygen supply pressure gauge.

(4) Monitor pressure gauge of the pilot circuit adapter plate for evidence of increasing pressure for five minutes. Pressure, as indicated on the pilot circuit adapter plate, shall not exceed 5 psig (0.03 MPa).

(5) Remove the pilot circuit adapter plate and re-attach the solenoid.

K. Final Internal Leakage Test

These test steps shall be done only prior to final preparation.

(1) Attach test equipment to Flow Control Unit as shown in Figure 103.

(2) Apply 2000 psig (13.8 MPa) to the INLET port of the Flow Control Unit for 15 minutes.

(3) Observe flowmeter (0.5-50 ccm). Leakage through the Flow Control Unit as measured at the OUTLET port, shall not exceed 0.005 lpm (5 ccm) NTPD.

L. Cover Leakage Test

These steps may be performed as part of another test in the test sequence.

(1) Attach test equipment to Flow Control Unit as shown in Figure 104.

(2) Apply 500 psig (3.45 MPa) to the INLET port of the Flow Control Unit.

(3) Using the flow control valve, positioned between the Flow Control Unit and the vacuum source, adjust the vacuum to produce an altitude of 40,000 feet. Verify altitude setting on mercury column.

(4) Using the AC power supply, apply 115 ± 5 VAC to pins 3 and 4 of the electrical connector (5, IPL Figure 5) to de-actuate the Flow Control Unit.

(5) Maintain the Flow Control Valve in the de-actuated (CLOSED) state with the established altitude for two minutes. The decrease in altitude caused by leakage shall not exceed 200 feet in the two minute period.

Table 104:
Troubleshooting Chart

TROUBLE	PROBABLE CAUSE	REMEDY
Relief valve assembly (25, IPL Figure 1) does not meet required specifications	Faulty relief valve assembly	Replace relief valve assembly
Leakage between cover (5, IPL Figure 6) and body (150 thru -150C, IPL Fig. 1)	Loose cover (5, IPL Fig. 6)	Tighten screws (10, IPL Fig. 6)
	Faulty gasket (15)	Replace gasket
	Damaged cover (5)	Replace cover
Leakage between cap assembly (15, IPL Figure 2) and body (150 thru -150C, IPL Fig. 1)	Loose sleeve retainer (35, IPL Fig. 2)	Torque sleeve retainer according to specifications
	Twisted or damaged Bellofram (60)	Re-seat/replace Bellofram
	Loose first stage valve components (75 thru 100, IPL Figure 2)	Torque first stage valve components into body (150 thru -150C, IPL Fig. 1) according to specifications
	Contaminated or damaged seat (90)	Clean/replace the seat
	Contaminated or damaged poppet (100)	Clean/replace the poppet
	Faulty preformed packing(s) (70 and/or 105)	Replace the preformed packing(s)
Leakage between surge valve cap (5, IPL Figure 3) and body (150 thru -150C, IPL Fig. 1)	Faulty preformed packing(s) (10, 35 and/or 80, IPL Fig. 3)	Replace the preformed packing(s)
	Loose flow control valve assembly (50, IPL 3)	Tighten flow control valve assembly
	Contaminated or damaged guide and seat assembly (75)	Clean/replace the guide and seat assembly
	Contaminated, loose or damaged stem (70)	Clean/tighten/replace the stem
	Twisted or damaged Bellofram (40)	Re-seat/replace Bellofram
Cannot actuate/de-actuate Flow Control Unit	Loose/incorrect wiring connections to connector (5, IPL Figure 5)	Verify that connections are secure/ correct (see Figure 706)
	Loose solenoid assembly (20)	Tighten screws (25)
	Faulty solenoid assembly (20)	Replace solenoid assembly

Table 104:
Troubleshooting Chart

TROUBLE	PROBABLE CAUSE	REMEDY
Cannot actuate/de-actuate Flow Control Unit (Continued)	Incorrect adjustment of actuation valve components (55 thru 75, IPL Figure 5)	Refer to the Assembly Section of this CMM for proper adjustment
	Contaminated or damaged valve seat assembly (75)	Clean/replace the valve seat assembly
	Contaminated, loose or damaged poppet (70)	Clean/tighten/replace the poppet
Unable to establish the required altitude compensated outlet pressure(s)	Incorrect adjustment of aneroid (90, IPL Figure 6), bellows assembly (95) or lever (25)	Refer to the Assembly Section of this CMM for proper adjustment
	Faulty aneroid (90) or faulty bellows assembly (95)	Replace aneroid/bellows as required
Outlet pressure from Flow Control Unit fails to stabilize	Contaminated or damaged guide and seat assembly (75, IPL Fig. 3)	Clean/replace the guide and seat assembly
	Faulty orifice and diaphragm assembly (25, IPL Figure 3)	Replace orifice and diaphragm assembly
	Faulty bellows assembly (95, IPL Figure 6)	Replace bellows assembly
	Pilot flow out of adjustment	Refer to the Assembly Section of this CMM for proper adjustment
Unable to obtain correct slope adjustment	Lever support (70, IPL Figure 6) not properly adjusted	Refer to the Assembly Section of this CMM for proper adjustment
Range of outlet pressures not within specification	Push pin (110, IPL Figure 6) not free in bellows assembly (95)	Clean/replace the push pin
	Damaged seat assembly (125, IPL Figure 6)	Replace seat assembly
	Faulty gasket (130, IPL Figure 6)	Replace gasket
	Loose/incorrectly adjusted/faulty flow control valve assembly (50, IPL Figure 3)	Tighten/adjust/replace flow control valve assembly

DISASSEMBLY

1. General

This section describes the equipment and procedures necessary for disassembly of the 804265 Series Flow Control Units (FCU). Most repair procedures do not require complete disassembly of the FCU. Disassemble units only to level necessary, as determined in Testing and Fault Isolation, to access suspect components.

To simplify disassembly of the FCU, each major functional group of components contained in the FCU has a dedicated IPL figure and has a separate paragraph dedicated to the disassembly and/or removal of that functional group. The functional groups of components are listed below together with the paragraph number within this section that describes the disassembly/removal procedure.

Paragraph	Functional Group	IPL Figure #
3.A.	Unit Disassembly	1
3.B.	First Stage Disassembly	2
3.C.	Flow/Surge Disassembly	3
3.D.	ON/OFF Indicator Disassembly	4
3.E.	Electrical/Actuation Disassembly	5
3.F.	Altitude Compensation Disassembly	6

2. Special Tools and Equipment

A list of special tools and/or equipment required for disassembly of the 804265 Series FCU is presented in Table 301. Entries in the "ITEM NO." column correspond to the tool listings presented in Table 901.

Table 301
Special Tools and/or Equipment

ITEM No.	PART NUMBER	PART NAME	APPLICATION
3	26651-2T52-1	Wrench	Remove / install seat assembly (125, IPL Fig. 6)
4	26705-T-T51-1	Pliers	Remove / install retaining ring (35, IPL Fig. 4)
5	800801-S52-1	Wrench	Remove / install sleeve retainer (35, IPL Fig. 2)
6	800801-S91-4	Wrench	Adjust Bellows Assembly (95, IPL Fig. 6) and Aneroid (90, IPL Fig. 6)
9	800801-T91-1	Wrench	Remove / install flow control valve assembly (50, IPL Fig. 3)
10	800801-T91-2	Wrench	Remove / install surge valve cap (5, IPL Fig. 3)
11	800801-T91-3	Wrench	Remove / install cap assembly (15, IPL Fig. 2)
17	804265-S91-1	Wrench	Remove / install seat retainer (50, IPL Fig.5)
18	10001630-T91-1	Wrench	Remove / install surge valve seat (30, IPL Fig. 3)
NOTES: Above tools and/or equipment are manufactured by Scott Aviation (V53655); equivalent tools and/or equipment may be used.			

3. General Disassembly

This section provides the details for the disassembly of the 804265 Series FCU. Unless otherwise noted all disassembly procedures apply equally to all 804265 Series FCU.

WARNING: TOOLS USED FOR MAINTENANCE / SERVICE OF OXYGEN RELATED EQUIPMENT SHALL BE CLEAN AND FREE OF CONTAMINANTS.

SUITABLE EYE PROTECTION SHALL BE WORN TO PREVENT ACCIDENTAL EYE INJURIES.

A. Unit Disassembly (Refer to IPL Figure 1.)

(1) Loosen nut (10) and remove elbow (5) from body (150 thru -150C).

(2) Remove nut (10) from elbow (5).

(3) Remove and discard preformed packing (15) and outlet screen (20) from body (150 thru -150C).

3. General Disassembly (Continued)

A. Unit Disassembly (Continued)

(4) Remove relief valve assembly (25) and preformed packing (30) from body (150 thru -150C). Discard preformed packing.

(5) Remove inlet fitting union (35), inlet seal (40) and inlet screen filter (45) from body (150 thru -150C). Discard inlet seal and screen filter.

(6) Remove test plug (50), preformed packing (55) and filter (60) from body (150 thru -150C). Discard preformed packing and filter.

(7) Remove four flat head screws (70) and remove mounting plate (65) from body (150 thru -150C).

(8) Remove pilot flow adjusting screw (75) from underside of body (150 thru -150C). Remove and discard preformed packing (80) from the pilot flow adjusting screw. Examine the pilot screw for wear or damage; discard and replace if necessary.

(9) Refer to paragraph 3.B. of this section and remove and disassemble the first stage assembly (85/85A) from body (150 thru -150C).

(10) Refer to paragraph 3.C. of this section and remove and disassemble the flow/surge assembly (90/90A) from body (150 thru -150C).

NOTE: Step 11 only applies to 804265-01 and 804265-02 FCU.

(11) Remove four fillister head screws (100) and lockwashers (105) and remove ON/OFF indicator assembly (95) from body (150 thru -150C). Remove and discard gasket (110). Refer to paragraph 3.D. of this section and Disassemble the ON/OFF indicator assembly in accordance with paragraph 6 of this Section.

(12) Refer to paragraph 3.E. of this section and remove and disassemble the electrical/actuation assembly (115/115A) from body (150 thru -150C).

(13) Refer to paragraph 3.F. of this section and remove and disassemble altitude compensation assembly (120/120A) from body (150 thru -150C).

B. First Stage Disassembly (Refer to IPL Figure 2)

Remove and disassemble first stage assembly (5 thru 105) from body (150 thru -150C, IPL Fig. 1) as follows:

(1) Remove the set screw (5, IPL Fig. 2) and the insert (10) from body.

CAUTION: WHEN REMOVING CAP ASSEMBLY (15) FROM BODY, USE WRENCH, PART NUMBER 800801-T91-3, TO SIMULTANEOUSLY PUSH CAP ASSEMBLY TOWARD BODY WHILE ROTATING WRENCH IN A COUNTERCLOCKWISE DIRECTION. THE PUSHING FORCE EXERTED ON THE WRENCH WILL COUNTERACT THE FORCE OF SPRING (25) TO PREVENT GALLING OF BODY AND/OR CAP ASSEMBLY THREADS.

(2) Using wrench, part number 800801-T91-3, carefully remove cap assembly (15) from body.

(3) Remove thrust washer (20), spring (25) and thrust washer (30) from body.

3. General Disassembly (Continued)

B. First Stage Disassembly (Continued)

(4) Using wrench, part number 800801-S52-1, remove sleeve retainer (35) from body.

(5) Remove sleeve (40) and diaphragm assembly (-45) from body. Remove and discard the preformed packing (70) from the external groove of damper (65).

NOTE: When removing the diaphragm assembly (-45) from the body, gently move the piston (55) from side to side while pulling up.

(6) Remove the hold down screw (50) and separate components (55, 60 and 65) of the diaphragm assembly (-45).

(7) Remove the retainer bearing assembly (85). Remove first stage valve components (75 thru 100).

(8) Hold spring pivot (75) stationary and rotate poppet (100) in a counterclockwise direction with a screw driver. Separate first stage valve components (75 thru 100).

(9) Remove preformed packing (105) from body. Discard the preformed packing.

C. Flow/Surge Disassembly (Refer to IPL Figure 3)

Remove flow/surge assembly (5 thru 80) from body (150 thru -150C, IPL Fig. 1) as follows:

(1) Use wrench, part number 800801-T91-2, and carefully remove cap (5, IPL Fig. 3) from body. Remove and discard preformed packing (10) from cap.

NOTE: Disassembly procedures described in steps (2) thru (4) of this paragraph only apply to the 804265-01 and 804265-03 Flow Control Units with surge control.

(2) Remove slip disc (15) from cap (5).

(3) Remove spring (20) and the orifice and diaphragm assembly (25) from body.

(4) Remove surge valve seat (30) from body using wrench P/N 10001630-T91-1. Remove and discard preformed packing (35) from surge valve seat.

(5) Remove flow control plug (-30A) from body using wrench P/N 10001630-T91-1. Remove and discard preformed packing (35) from flow control plug.

NOTE: This step only applies to the 804265-02 and 804265-04 FCU without surge control.

(6) Remove flow control bellofram (40) and disc plate (45) from body. Discard bellofram.

(7) Using wrench, part number 800801-T91-1, remove the flow control valve assembly (50) from body. Remove and discard preformed packing (80) from flow control valve assembly.

3. General Disassembly (Continued)

C. Flow/Surge Disassembly (Continued)

(8) Disassemble flow control valve assembly (50, IPL Figure 3) as follows:

(a) Loosen nut (65) then un-thread piston (55) from stem (70); remove piston and spring (60).

(b) Remove nut (65) from stem (70); remove stem from guide and seat assembly (75).

D. ON/OFF Indicator Disassembly (Refer to IPL Figure 4)

NOTE: Step D. only applies to 804265-01 and 804265-02 FCU.

Disassemble ON/OFF indicator assembly (5 thru 70) from the body (150 thru -150C, IPL Fig. 1) as follows:

(1) Un-thread cap (5, IPL Fig. 4) from housing (55); remove prism lens (10) and "OFF" label (25).

(2) Remove setscrew (20) then remove spring (15).

(3) Using retaining ring pliers, part number 26705-T-T51-1, remove retaining ring (35) from external groove of piston assembly (40). Remove "ON" flag (30).

(4) Remove piston assembly (40) by pushing the end of piston assembly out and through housing (55). Remove piston assembly from underside of housing (55).

(5) Remove stop cup (45) and preformed packing (50) from piston assembly (40). Discard preformed packing.

E. Electrical/Actuation Disassembly (Refer to IPL Figure 5)

Remove electrical/actuation assembly (5 thru 80) from body (150 thru -150C, IPL Fig. 1) as follows:

(1) Remove receptacle connector (5, IPL Fig. 5) from body as follows:

(a) Remove the four fillister screws (10) and four lockwashers (15) and remove receptacle connector (5) from body.

(b) If necessary, remove four solenoid lead wires and one ground wire from connector terminal pins 1 thru 5 on the rear surface of receptacle connector (5). Refer to Figure 301.

(2) Remove solenoid assembly (20) from body as follows:

(a) Loosen nut (40) and remove nut from setscrew. Remove ground terminal lug (42), lockwasher (30) from solenoid assembly (20). If necessary, remove setscrew (35) from body.

(b) Remove three fillister head screws (25) and three lockwashers (30) then remove solenoid assembly (20) from body. Remove and discard preformed packing (45) from body.

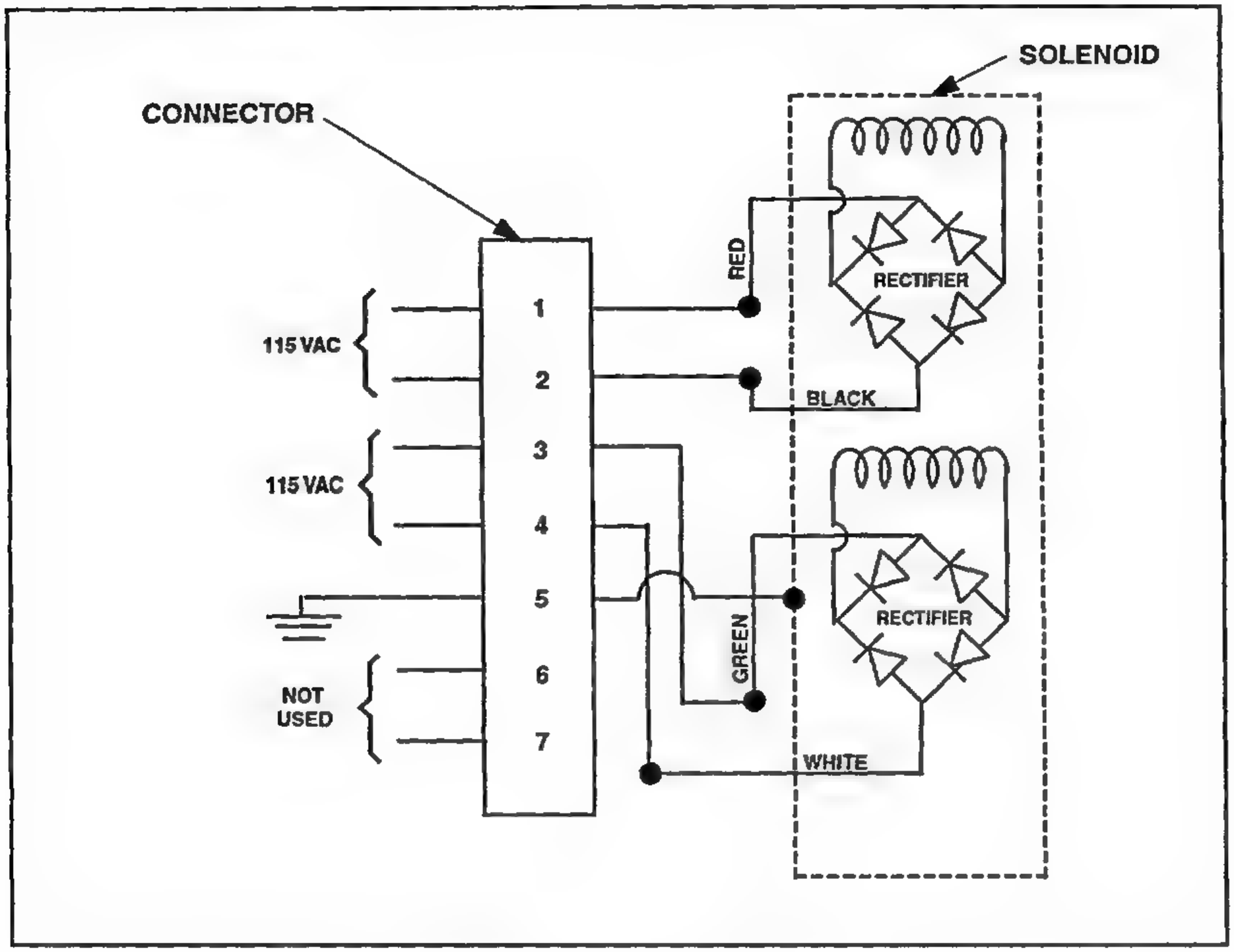


Figure 301
Electrical Schematic

3. General Disassembly (Continued)

E. Electrical/Actuation Assembly (Continued)

(3) Using wrench, part number 804265-S91-1, remove and disassemble actuation valve components (50 thru 80) from body (150 thru -150C, IPL Fig. 1) as follows:

(a) Remove actuation valve components (50 thru 80, IPL Fig. 5) from body. Remove and discard preformed packing (80) from molded valve seat assembly (75).

(b) Disassemble actuation valve components (50 thru 80) as follows:

1 Loosen locknut (60), then remove cap nut (55) from threaded end of poppet (70).

2 Remove locknut (60) and spring (65) from top side of seat retainer (50).

3 Remove poppet (70) and molded valve seat assembly (75) from underside of seat retainer (50).

3. General Disassembly (Continued)

F. Altitude Compensation Disassembly (Refer to IPL Figure 6)

Remove and disassemble altitude compensation assembly (5 thru 135) from body (150 thru -150C, IPL Fig. 1) as follows:

(1) Remove six fillister head screws (10, IPL Fig. 6) and remove aneroid cover (5) and gasket (15) from body.

(2) If necessary, remove vacuum hose adapter (20) from aneroid cover (5).

(3) Remove two fillister head screws (75), two lockwashers (80) and two flat washers (85). Remove the lever support (70) and lever (25) from body.

(4) Disassemble lever (25) from lever support (70) as follows:

(a) Remove two nuts (45) and two setscrews (50).

(b) Remove both nuts (30) and washers (35) from ends of pin (40). Remove pin, lever (25) and spring (55).

(c) Remove setscrew (60) from lever (25).

(d) Remove two adjusting screws (65) from lever (25).

CAUTION: FOR REMOVAL OF THE ALTITUDE PRESSURE SENSING ANEROID (90, IPL FIGURE 6) USE THE WRENCH FLATS BELOW THE BELLOWS SECTION ON THE ANEROID. DO NOT TURN THE ANEROID USING THE BELLOWS SECTION OF THE ANEROID OR YOU WILL DAMAGE THE ANEROID.

(5) Remove altitude pressure sensing aneroid (90) from body using the aneroid wrench, P/N 800801-S91-4.

CAUTION: FOR REMOVAL OF THE PILOT BELLOWS ASSEMBLY (95, IPL FIGURE 6) USE THE WRENCH FLATS BELOW THE BELLOWS SECTION ON THE ASSEMBLY. DO NOT TURN THE PILOT BELLOWS ASSEMBLY USING THE BELLOWS SECTION OR YOU WILL DAMAGE THE ASSEMBLY.

(a) Loosen jam nut (105) and remove the pilot bellows assembly (95). Remove and discard preformed packing (100) from threaded stem of bellows assembly.

(b) Remove jam nut (105) from pilot bellows assembly (95).

(c) Remove push pin (110), stem (115) and spring (120) from body.

(d) Using tool, part number 26651-2T52-1, remove stem seat assembly (125) from body.

(e) Remove and discard gasket (130) from body.

CLEANING

1. General

This section contains information regarding the equipment and procedures required for cleaning of the 804265 Series Flow Control Units. Prior to cleaning, units shall be disassembled in accordance with the DISASSEMBLY section of this document.

2. Safety

WARNING: SUITABLE EYE PROTECTION SHALL BE WORN DURING CLEANING PROCEDURES TO PREVENT EYE INJURIES.

WHEN USING CLEANING SOLVENTS, AVOID PROLONGED OR REPEATED CONTACT WITH SKIN AND INHALATION OF TOXIC VAPORS.

CLEANING PROCEDURES SHALL ONLY BE PERFORMED IN AN APPROVED CLEANING CABINET, OR IN A WELL VENTILATED ROOM OR AREA.

DO NOT USE SOLVENTS NEAR OPEN FLAMES, OR IN AREAS WHERE HIGH TEMPERATURES PREVAIL.

DO NOT ALLOW OIL, GREASE, FLAMMABLE SOLVENTS, OR OTHER COMBUSTIBLE MATERIALS TO COME IN CONTACT WITH PARTS THAT WILL BE EXPOSED TO PRESSURIZED OXYGEN. DUST, LINT, AND FINE METAL FILINGS, ARE ALSO POTENTIAL COMBUSTIBLES THAT MIGHT IGNITE, AND RESULT IN AN EXPLOSION, WHEN EXPOSED TO PRESSURIZED OXYGEN.

3. Cleaning Materials

A list of cleaning materials is presented in Table 401. Equivalent materials may be substituted.

Table 401
Cleaning Materials

MATERIAL	DESCRIPTION	MANUFACTURER (W/ Vendor Code)
Cleaner	Nonionic detergent, Type I (MIL-D-16791)	Commercially Available
Degreasing Agent	Genesolv 2000 - or - 1,1-Dichloro-1-fluoroethane	Allied Signal Corp. Morristown, NJ (V72658)

4. Metallic Components

Clean metallic components using a vapor degreasing method with degreasing agent specified in Table 401. Dry components with clean, dry, oil-free, heated air. Hydrocarbon contamination shall not exceed 1.0 mg. per square foot.

5. Non-Metallic Components

Clean non-metallic components using an nonionic detergent and water cleaning system. Parts shall be completely rinsed with clear water, and dried using clean, dry, oil-free, heated air. Hydrocarbon contamination shall not exceed 1.0 mg. per square foot.

CHECK

1. General

Following disassembly and cleaning procedures described in preceding sections of this document, all Flow Control Unit components shall be checked prior to use in reassembly. If doubt exists about serviceability of a part, replace it.

NOTE: Do not examine filters, o-rings, packings and nonmetallic seals. These items shall be replaced each time they are removed during disassembly.

2. Flow Control Units

Inspect Flow Control Unit components as indicated below:

A. Carefully inspect all metal parts for cracks, nicks, dents, burrs or tool marks which might cause malfunction of the control unit.

B. Inspect aneroid (90, IPL Figure 6) and bellows assembly (95) for dents, cracks and any other signs of damage.

C. Inspect all threads for burrs and signs of damage.

D. Inspect all valve seats for scoring, scratches, contamination and other damage.

E. Inspect all parts for obvious damage.

REPAIR

1. General

This section defines the scope of repair procedures that shall be performed with respect to the 804265 Series Flow Control Units. Prior to repair, components shall have been evaluated in accordance with the CHECK section of this document.

2. Repair

Repair shall be limited to only those activities below:

A. Cleaning

B. Burr removal

C. Thread chasing

D. Replacement of cracked, bent, broken, scored, or otherwise defective components.

E. Replacement of any gasket, seal, packing, o-ring or filter, when removed during disassembly.

ASSEMBLY

1. General

This section describes the equipment and procedures necessary for assembly of the 804265 Series Flow Control Units.

To simplify assembly of the Flow Control Units, each major functional group of components contained in the Flow Control Units has a dedicated IPL figure and has a separate paragraph dedicated to the assembly and/or installation of that functional group. The functional groups of components are listed below together with the paragraph number within this section that describes the assembly/installation procedure.

Paragraph	Functional Group	IPL Fig. #
5	Unit Assembly	1
6	First Stage Assembly	2
7	Flow/Surge Assembly	3
8	ON/OFF Indicator Assembly	4
9	Electrical/Actuation Assembly	5
10	Altitude Compensation Assembly	6

2. Special Tools and Equipment

The special tools and/or equipment required for assembly of the 804265 Series Flow Control Units are presented in Table 701. Entries in the "ITEM No." column reference the "ITEM No." listings in Table 901 and Table 902.

WARNING: TOOLS USED FOR MAINTENANCE/SERVICE OF OXYGEN RELATED EQUIPMENT SHALL BE CLEAN AND FREE OF CONTAMINANTS.

SUITABLE EYE PROTECTION SHALL BE WORN TO PREVENT ACCIDENTAL EYE INJURIES.

Table 701
Special Tools and Test Equipment

ITEM No.	PART NUMBER	PART NAME	APPLICATION or MANUFACTURER (W/ VENDOR CODE)
1	MS24256A16	Insertion Tool	Install lead wires on connector (5, IPL Fig. 5) Commercially available.
2	22504-T58-2	Test Plug	Test plug for pilot bellows assembly port
3	26651-2T52-1	Wrench	Remove / install seat assembly (125, IPL Fig. 6)
4	26705-T-T51-1	Pliers	Remove / install retaining ring (35, IPL Fig. 4)
5	800801-S52-1	Wrench	Remove / install sleeve retainer (35, IPL Fig. 2)
6	800801 -S91-4	Wrench	Adjust Bellows Assembly (95, IPL Fig. 6) and Aneroid (90, IPL Fig. 6)
7	800801-T52-7	Rod	Install inlet screen filter (45, IPL Fig. 1)
8	800801-T52-1	Rod	Install test port filter (60, IPL Fig. 1)
9	800801-T91-1	Wrench	Remove / install flow control valve assembly (50, IPL Fig. 3)
10	800801-T91-2	Wrench	Remove / install surge valve cap (5, IPL Fig. 3)
11	800801-T91-3	Wrench	Remove / install cap assembly (15, IPL Fig. 2)
12	800853-T51-1	Check Fixture	Check flow control valve assembly dimensions
13	800853-T91-1	Crowfoot extension	Torque nut (60, IPL Fig. 5)
14	801130-S58-1	Leak Test Fixture	Test for leakage of actuation valve compo-nents (55 thru 75, IPL Fig. 5)
15	803662-T52-10	Stylus	Application of Oxygen Lubricant
16	803662-T52-11	Stylus	Application of Preformed Packing
17	804265-S91-1	Wrench	Remove / install seat retainer (50, IPL Fig.5)
18	10001630-T91-1	Wrench	Remove / install surge valve seat (30, IPL Fig. 3)
19	10008853-T58-1	Test Cover	Test cover for lever support (70, IPL Fig. 6)
-	Regulator, Oxygen (2 required)	PR55-1A51H9L151	Vemco Corp. (Go, Inc.) San Dimas, CA 91773-2925 (V62527)
-	Pressure Gauge (0-2000 psig) (0-200 psig)	1403 Series	Ametek (U.S. Gauge) Sellersville, PA 18960 (V61349)
-	Flow Control Valve (2 required)	B18VF8	Whitey Co. Highland Heights, OH 44143 (V12623)
-	Flowmeter (200-2000 LPM) (0.5-50 ccm)	1110CM41CGAA 1110CC21ABGAA	Brooks Instruments Statesboro, GA 30458 (V91556)

NOTES: Item Numbers 2 thru 19 above are tools and/or equipment manufactured by Scott Aviation (V53655). Equivalent tools and/or equipment may be used.

3. Assembly Materials

A list of consumable materials, required for assembly of the 804265 Series Flow Control Units, is provided in Table 702. Equivalent materials may be used for the listed items except for oxygen lubricant.

Table 702
Consumable Assembly Materials

MATERIAL	DESCRIPTION	MANUFACTURER (W/ Vendor Codes)
Oxygen Lubricant	Krytox 240 AC (SPN 50527-00)	E.I. DuPont DeNemours & Co. Inc. Wilmington, DE (V18873)
Lockwire	MS20995C20	Commercially Available
Red Enamel	Glyptal #1201 (SPN 50009-00)	Glyptal Chelsea, MA (65313)
Sealing Compound (per MIL-S-46163)	Loctite #222 (SPN 50004-15)	Loctite Corporation Newington, CT (V05972)
	Loctite #242 SPN 50004-16)	
	Loctite Grade C (SPN 50004-03)	
Primer	Locquic Type T (SPN 50349-01)	
Leak Test Solution	Sherlock Leak Detector, Type 1, MIL-L-25567D	Winton Products Charlotte NC (V23316)

4. Pre-Assembly Requirements

A. All components that are to be used in assembly of the 804265 Series Flow Control Units shall have been cleaned and checked in accordance with preceding sections of this document.

B. Unless otherwise noted, all packings, seals and o-rings shall be lubricated with a thin film of Krytox 240 AC Lubricant, prior to installation using stylus part number 803662-T52-10 if applicable.

5. Unit Assembly - (Refer to IPL Figure 1)

NOTE: Unless otherwise noted, all assembly procedures apply equally to all 804265 Series Flow Control Units (FCU). Refer to the "EFF CODE" column of the Illustrated Parts List to determine components used on the configuration being assembled.

A. Install inlet fitting union (35) in the INLET port of body (150 thru -150C) as follows:

(1) With fine mesh of inlet screen filter (45) facing outward from body (150 thru -150C), and using nylon rod, part number 800801-T52-7, install inlet screen filter in the INLET port of body (150 thru -150C). Remove any debris generated by installation of the screen filter.

(2) Install inlet seal (40) on inlet fitting union (35); install inlet fitting union in the INLET port of body (150 thru -150C). Torque inlet fitting union to **300 in•lbs (33.9 N•m).**

B. Install outlet elbow (5) in the OUTLET port of body (150 thru -150C) as follows:

(1) Install outlet screen filter (20) in the OUTLET port of body (150 thru -150C). Remove any debris generated by installation of the screen filter.

(2) Fully thread nut (10) onto threads of elbow (5) and install preformed packing (15) on the elbow; install the elbow in the OUTLET port of body (150 thru -150C).

(3) Orient elbow (5) to face in proper direction; un-thread nut (10) to contact surface of body (150 thru -150C) and thereby lock elbow (5) in established orientation.

C. Orient filter (60) with fine mesh side of the filter facing outward from body (150 thru -150C). Using installation tool, part number 800801-T52-1, install filter in TEST port of body (150 thru -150C). Remove any debris generated by installation of the filter.

NOTE: DO NOT install test plug (50) at this time.

D. Install preformed packing (30) on threaded end of relief valve assembly (25); using a 7/8 in. (2.2 cm) wrench install the relief valve assembly into the relief valve port on body (150 thru -150C).

E. Install first stage assembly (85) in accordance with paragraphs 6.A thru 6.D of this section. After installation, apply 3250 psig to the body for two minutes (refer to Fig. 701); there shall be no evidence of damage, deterioration or permanent set. Then discontinue the application of pressure.

NOTE: The remaining assembly and installation instructions provided in paragraph 6 will be performed later in this assembly procedure.

F. Install flow/surge assembly (90/-90A, IPL Figure 1) in body (150 thru -150C) in accordance with paragraph 7 of this Section.

NOTE: Step G. only applies to 804265-01 and 804265-02 FCU.

G. Assemble ON/OFF indicator assembly (95) in accordance with paragraph 8 of this Section. Then position gasket (-110) on underside of ON/OFF indicator assembly. Secure the assembly to body (150 thru -150C) with four screws (-100) and four lockwashers (-105).

H. Install electrical/actuation assembly (115) on body (150 thru -150C) in accordance with paragraph 9 of this Section.

5. General Assembly - (Continued)

J. Refer to IPL Figure 2 and perform a leakage test of the first stage valve components (75 thru 105) as follows:

(1) Attach test equipment to the partially assembled Flow Control Unit as shown in Figure 701.

(2) Apply 500 psig (3.45 MPa) to the Flow Control Unit to purge the body (150 thru -150C, IPL Fig.1). Purge the body for 15-20 seconds. Then discontinue the application of pressure.

(3) Apply 500 psig (3.45 MPa) to the Flow Control Unit. While pressure is being applied to the unit, momentarily push downward on the spring pivot (75) portion of the installed first stage valve components, then release. This action will unseat poppet (100) and allow the pressure to re-seat the poppet.

(4) Repeat the manual operation of the first stage valve components several times to enable the poppet to form a proper seal with seat (90).

(5) Install cap assembly (15) in first stage port of body (150 thru -150C, IPL Fig.1).

(6) Using your fingers or pieces of tape cover the TEST port of body (150 thru -150C, IPL Figure 1) and the threaded hole that accommodates setscrew (5).

(7) Using your fingers or pieces of tape cover the center hole and either of the smaller holes on the top surface of the cap assembly (15).

(8) Apply leak test solution to the remaining hole on the top surface of the cap assembly (15) and around the threads of the cap assembly. There shall be no evidence of leakage.

NOTE: If leakage is detected, remove cap assembly (15, IPL Figure 2) and manually operate the first stage valve components as described in J(3) and J(4) to properly seat the poppet. If zero leakage cannot be achieved, replacement of the seat (90) and/or poppet (100) may be required.

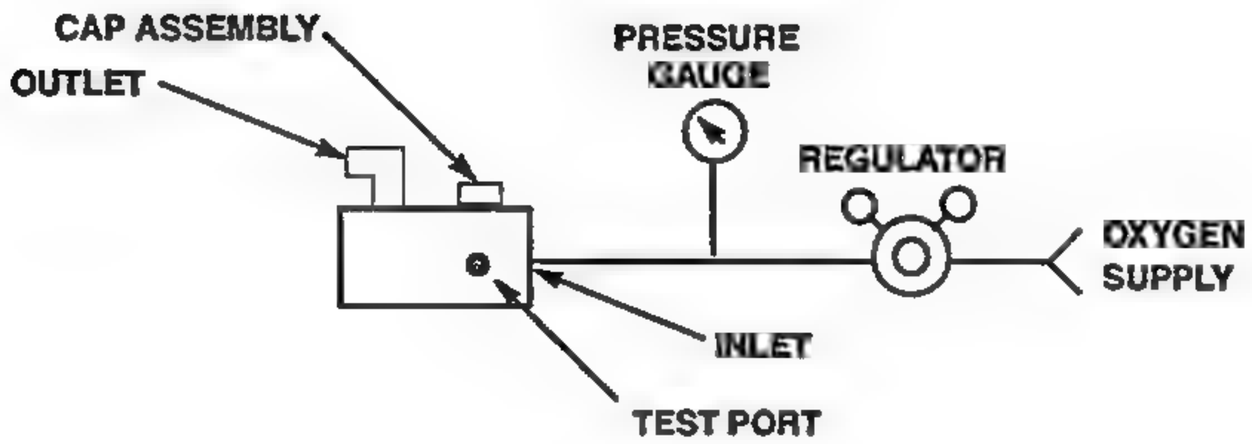
A #1 or #0 rubber stopper with a hose attached can be substituted for attaching the cap assembly (15) for the leak check. The hose attached to the rubber stopper may be placed in a container of leak test solution.

DO NOT continue with assembly of the Flow Control Unit until zero leakage of the first stage valve components has been achieved.

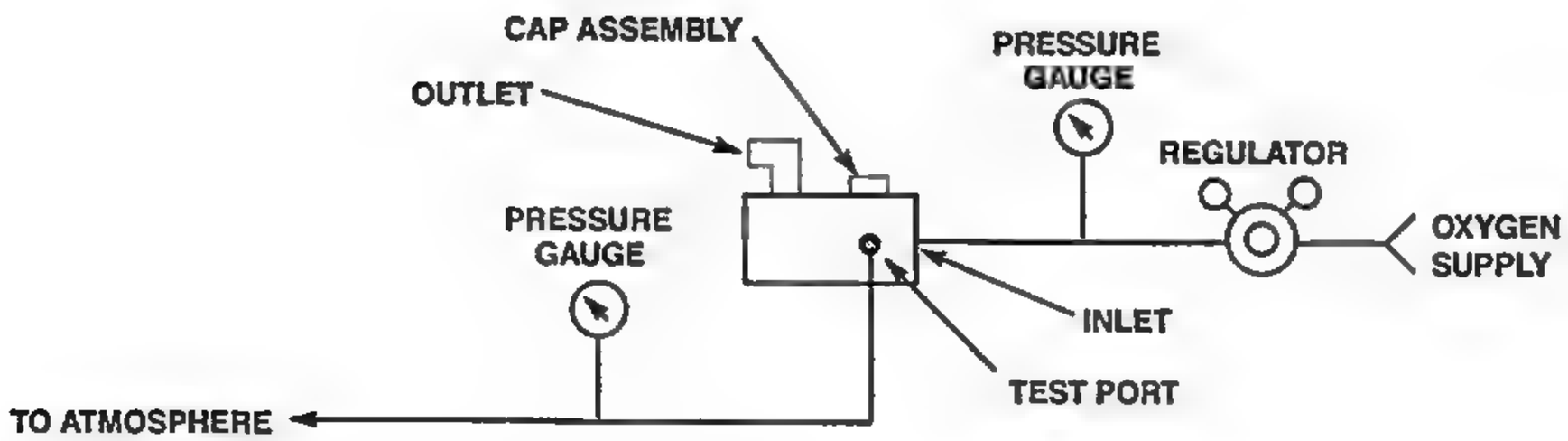
(9) Disconnect Flow Control Unit from the test equipment; be sure to completely remove any residual leak test solution before continuing with the assembly procedures.

(10) Remove cap assembly (15).

K. Complete installation of the first stage assembly in accordance with paragraphs 6.E thru 6.N of this section.



Test Setup - First Stage Valve
Figure 701



Test Setup - First Stage Components
Figure 702

5. Unit Assembly - (Continued)

L. Refer to IPL Fig.2 and perform a leakage test of the completely installed first stage assembly as follows:

(1) Attach test equipment to the partially assembled Flow Control Unit as shown in Figure 702.

(2) Apply 500 psig (3.45 MPa) to the INLET port of the Flow Control Unit.

(3) Observe pressure gauge connected to TEST port of the Flow Control Unit. Pressure indicated on this gauge shall be 115-120 psig (0.793-0.827 MPa); using wrench, part number 800801-T91-3, rotate cap assembly (15, IPL Figure 2) to obtain required first stage pressure indication.

(4) Using your finger or a piece of tape, cover the threaded hole that accommodates setscrew (5).

(5) Using your fingers or pieces of tape cover the center hole and either of the smaller holes on the top surface of the cap assembly (15).

(6) Apply leak test solution to the remaining hole on the top surface of the cap assembly (15). There shall be no evidence of leakage.

(7) Discontinue the application of pressure and bleed residual pressure from the test setup. Remove the Flow Control Unit from the test setup.

M. Refer to IPL Figure 1 and install preformed packing (55) on test plug (50); install test plug in test port of body (150 thru -150C).

N. Install altitude pressure sensing aneroid (90, IPL Figure 6) in accordance with paragraph 10.A of this Section.

P. Install stem and spring assembly, seat assembly, and gasket (115 thru 130, IPL Fig. 6) in accordance with paragraphs 10.B(4), 10.B(5) and 10.B(6) of this section.

Q. Refer to IPL Figure 1 and install pilot flow adjusting screw (75) into the pilot flow adjusting port on underside of body (150 thru -150C) as follows:

(1) Apply a light film of oxygen lubricant to stylus, part number 803662-T52-10, and to preformed packing (80).

(2) Using stylus, install preformed packing (80) in groove of pilot flow adjusting screw (75).

(3) Thread adjusting screw (75) into pilot flow adjusting port until head of the adjusting screw is flush with the bottom surface of the body (150 thru -150C).

5. General Assembly - (Continued)

R. Establish pilot flow adjustment as follows:

(1) Attach test equipment to the partially assembled Flow Control Unit as shown in Figure 703. Flow control valves #1 and #2, located downstream of the Flow Control Unit outlet, shall be in the CLOSED position.

NOTE: The pilot bellows assembly called out in Figure 703 is not installed during this setup procedure. Test plug, part number 22504-T58-2, shall be installed in the pilot bellows assembly port for the duration of the pilot flow adjustment procedure.

(2) Apply 500 psig (3.45 MPa) to the INLET port of the Flow Control Unit.

(3) Apply 115 ± 5 VAC to pins 1 & 2 of the receptacle connector (5, IPL Figure 5) to actuate the Flow Control Unit.

(4) SLOWLY open flow control valve #1 until gaseous flow through the flow control valve is audible.

(5) SLOWLY turn pilot flow adjusting screw in a clockwise direction until gaseous flow through flow control valve #1 is barely audible.

(6) Repeat Steps (4) and (5) until flow control valve #1 is completely opened, and the gaseous flow through flow control valve #1 is barely audible.

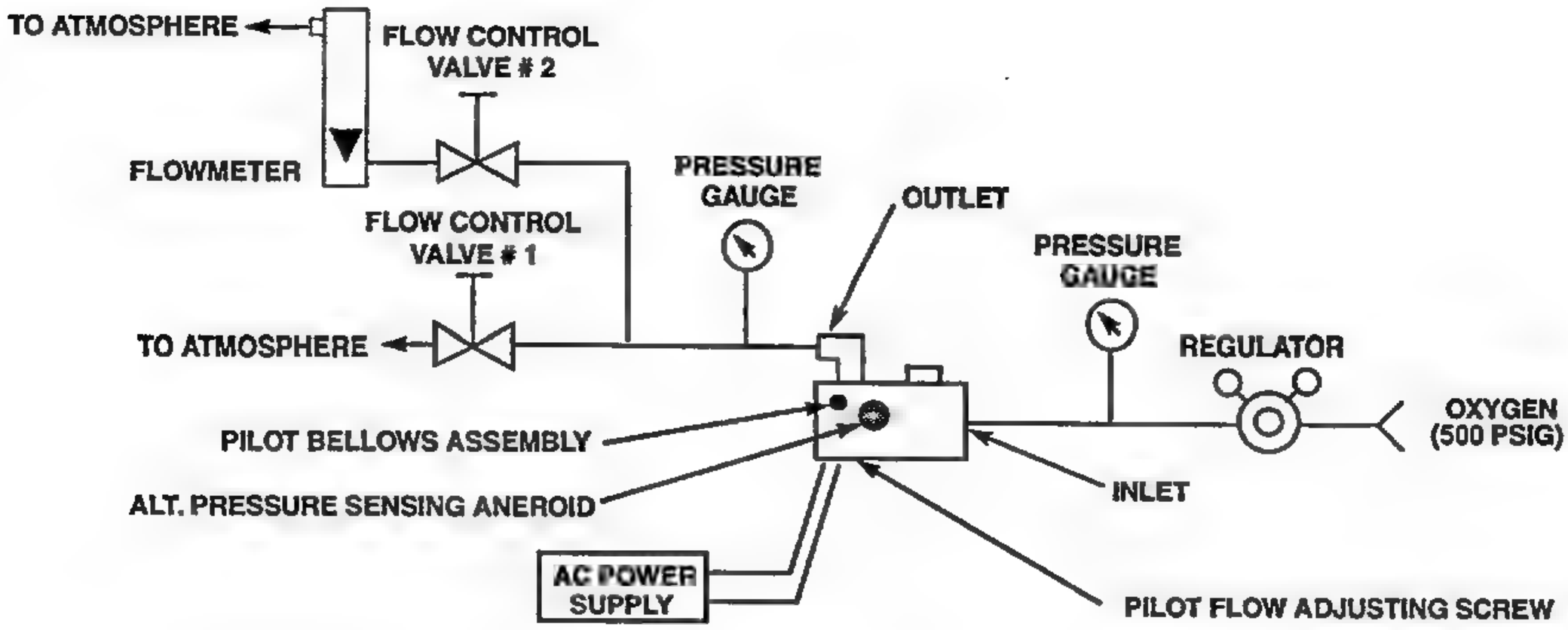
(7) Close flow control valve #1; open flow control valve #2 to operate the flowmeter.

(8) Adjust the pilot flow adjusting screw (75, IPL Figure 1) to obtain a pilot flow of 2.0 - 2.5 lpm as indicated on the flowmeter.

S. Install and adjust altitude compensation assembly (120, IPL Figure 1) in accordance with paragraph 10.B. thru 10.H. of this Section.

NOTE: Installation procedures for the pilot bellows assembly described in paragraphs 10.B(4), 10.B(5) and 10.B(6) have already been performed.

T. Perform the Altitude Compensated Regulation Test described in the Test & Fault Isolation Section of this CMM.



Pilot Flow Adjustment
Figure 703

6. First Stage Assembly - (Refer to IPL Figure 2)

Install first stage assembly (85, IPL Figure 1) in body (150 thru -150C, IPL Figure 1) as follows:

A. Assemble first stage valve components (75 thru 90,100, IPL Fig. 2) as follows:

(1) Place large diameter of seat (90) in recess on bottom surface of bearing retainer (85).

(2) Install threaded end of poppet (100) through seat (90) and bearing retainer (85).

(3) Install spring (80) in recess on top surface of bearing retainer (85).

(4) Orient pilot diameter end of spring pivot (75) toward spring (80); install spring pivot on threads of poppet (100). The pilot diameter of the spring pivot (75) shall engage the inside diameter of spring (80). Hold wrench flats of spring pivot and tighten the poppet to "snug" using a screwdriver.

B. Install preformed packing (105) in groove at bottom of first stage port of body.

C. Orient pilot diameter of seat spacer (95) toward body. Install seat spacer in bottom of first stage port of body. The pilot diameter of the seat spacer should be captured in the bore at the bottom of the first stage port.

D. Orient the first stage valve components (75 thru 100) with the poppet (100) facing the first stage port of body. Install the first stage valve components in body. Install and torque bearing retainer (85) to **90 in•lbs (10.2 N•m)**.

6. First Stage Assembly - (Continued)

NOTE: Prior to installing the first stage diaphragm assembly (-45) perform the leakage test of the first stage valve components in accordance with paragraph 5.J of this Section.

E. Assemble first stage diaphragm assembly (-45) as follows:

(1) Apply Locquic primer T to external threads of hold down screw (50) and internal threads of piston (55); remove excess primer. Allow primer to dry for five minutes.

(2) Apply Loctite Grade C sealing compound to external threads of hold down screw (50) and internal threads of piston (55); remove excess sealing compound. Allow sealing compound to dry overnight.

(3) Place piston (55) in Bellofram (60) and position them on the top surface of damper (65). Secure this arrangement of components together with hold down screw (50). Torque hold down screw to **12 in•lbs (1.4 N•m)**.

(4) Remove excess sealing compound using a lint-free cloth moistened with clean water. Allow first stage diaphragm assembly (-45) to cure overnight.

(5) Check break-away torque of hold down screw (50); break-away torque shall not be less than **9 in•lbs (1.1 N•m)**.

F. Refer to IPL Figure 2 and install preformed packing (70) in groove on outside diameter of damper (65). Refer to Figure 704; hold the edge of Bellofram (60) and fold the Bellofram over the damper (65) even with the preformed packing (70). Apply a thin film of oxygen lubricant to rim of Bellofram and preformed packing.

G. With damper portion of diaphragm assembly (-45) toward body, install diaphragm assembly into first stage port of body. Be sure that the thick bead of the Bellofram is seated in groove at bottom of first stage port of body.

H. Apply a thin film of oxygen lubricant to inside diameter of sleeve (40). With rounded-over inside diameter of the sleeve facing the installed diaphragm assembly (-45) install the sleeve into the first stage port of body.

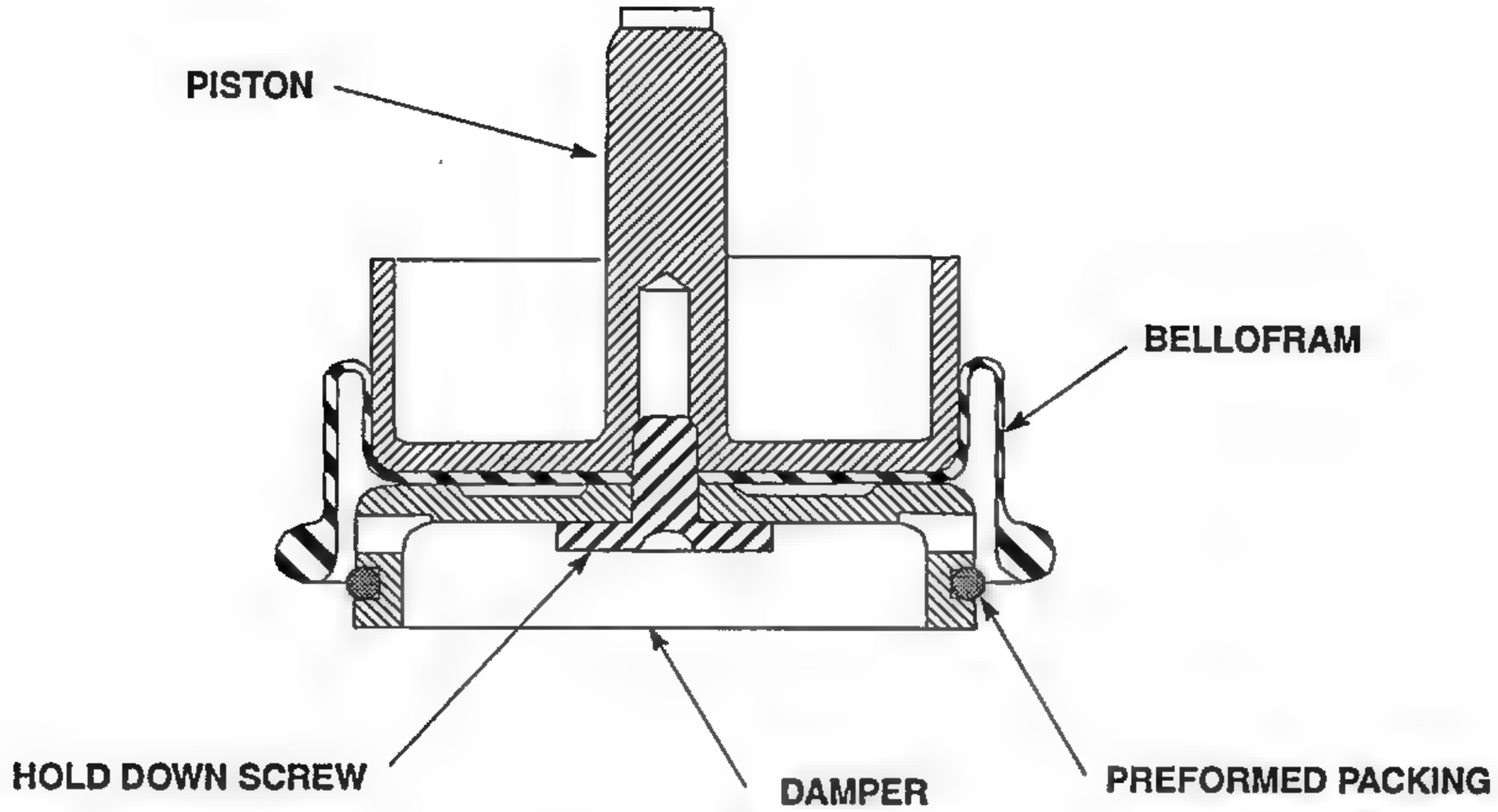
NOTE: Be sure that Bellofram (60) portion of diaphragm assembly (-45) is not twisted or pinched inside the sleeve.

J. Using wrench, part number 800801-S52-1, install sleeve retainer (35) in body. Torque sleeve retainer to **135 in•lbs (15.3 N•m)**.

NOTE: Be sure that Bellofram (60) portion of diaphragm assembly (-45) is not twisted or pinched inside the sleeve.

K. Install piston thrust washer (30), with pilot diameter facing upward, spring (25) and cap thrust washer (20), with pilot diameter facing downward, into first stage port of body.

NOTE: When properly installed, the outside diameter of the piston (55) stem passes through the inside diameters of the two thrust washers and the spring.



Bellofram Installation
Figure 704

6. First Stage Assembly - (Continued)

CAUTION: WHEN INSTALLING CAP ASSEMBLY (15) IN BODY, USE WRENCH, PART NUMBER 800801-T91-3, TO SIMULTANEOUSLY PUSH CAP ASSEMBLY TOWARD THE BODY WHILE ROTATING THE WRENCH IN A CLOCKWISE DIRECTION. THE PUSHING FORCE EXERTED ON THE WRENCH WILL COUNTERACT THE FORCE OF SPRING (25) TO LESSEN THE CHANCE OF GALLING THE BODY AND/OR CAP ASSEMBLY THREADS.

L. Using wrench, part number 800801-T91-3, install cap assembly (15) into body. Thread cap assembly into body until the last thread of the cap assembly is flush with the top surface of the body.

NOTE: An arbor press may be used to counteract the force of spring (25) during installation of cap assembly (15) into body.

M. Adjust first stage pressure in accordance with paragraph 5.L. (Perform a leak test of the completely ....) of this section

N. Refer to IPL Figure 2 and install thread locking insert (10) and setscrew (5) into body. Installation of the thread locking insert and the setscrew will secure the cap assembly (15) in the adjusted position.

7. Flow/Surge Assembly - (Refer to IPL Figure 3)

Refer to IPL Figure 3 and install flow/surge components (5 thru 80), in body (150 thru -150C, IPL Fig. 1) as follows:

A. Assemble flow control valve assembly (-50, IPL Fig. 3) as follows:

(1) Install threaded end of stem (70) into underside of guide and seat assembly (75).

NOTE: The stem (70) must go through the guide and seat assembly (75) using the weight of the stem only, with a slight drag and no restriction.

(2) Install nut (65) on threaded end of stem (70) that extends beyond shaft portion of guide and seat assembly (75).

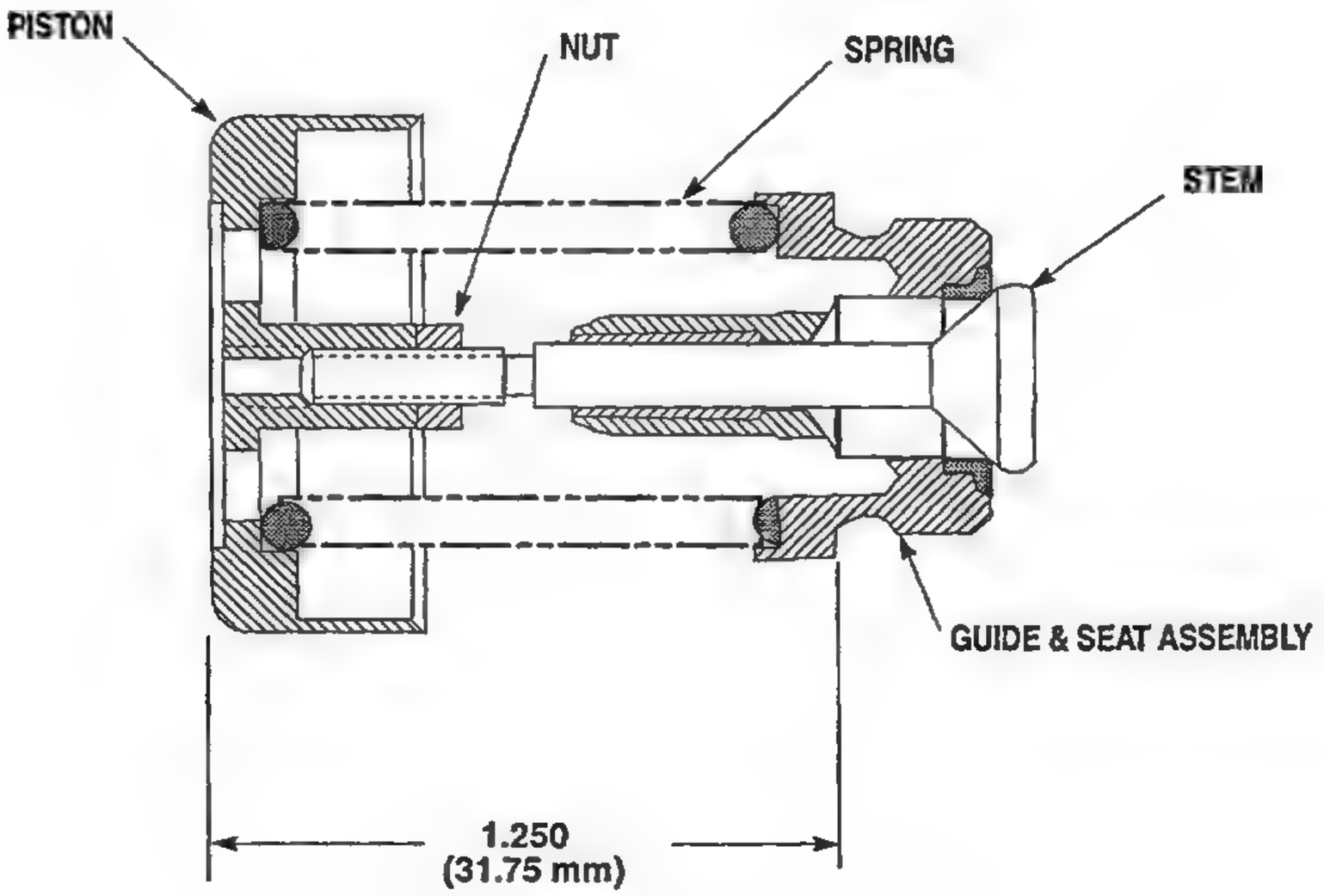
(3) Install spring (60) in recess of guide and seat assembly (75).

(4) With cupped surface of piston (55) facing guide and seat assembly (75), thread piston on stem (70).

(5) Using checking fixture, part number 800853-T51-1, adjust length of flow control valve assembly as shown in Figure 705.

(6) Tighten nut (65) against face of piston (55) to secure the adjusted dimension. Torque nut to **6.0 in•lbs (0.68 N•m)**. If using tool part number 800853-T91-1, torque the nut to **4.5 in•lbs (.51 N•m)**

B. Install preformed packing (80) on guide and seat assembly (75).



Control Valve Assembly Adjustment
Figure 705

7. Flow/Surge Assembly - (Continued)

C. Orient the stem (70) portion of the flow control valve assembly (-50) toward body (150 thru -150C, IPL Fig. 1). Using wrench, part number 800801-T91-1, install the flow control valve assembly in the flow control port of the body.

D. Install disc plate (45) in the recess on the top surface of the flow control valve assembly (-50).

E. Apply a thin film of oxygen lubricant to the preformed packing (35) and install preformed packing (35) in groove on external diameter of seat or plug (30/-30A). The seam of the preformed packing shall run parallel to the groove.

F. Invert Bellofram (40) in a similar fashion as shown in Figure 704. Apply a thin film of oxygen lubricant to rim of the Bellofram. Install the rim of the Bellofram (40) on the pilot diameter on the underside of seat or plug (30/-30A).

G. Using tool, part number 10001630-T91-1, CAREFULLY work the assembled Bellofram (40) and seat or plug (30/-30A) into the flow control port of the body. When properly installed the cup portion of the Bellofram will reside on the piston (55) portion of the flow control valve assembly (-50).

NOTE: Assembly procedures described in steps H thru K of this paragraph only apply to the 804265-01 and 804265-03 FCUs with surge control.

H. Orient the orifice and diaphragm assembly (25) with the diaphragm facing downward; install the orifice and diaphragm assembly into the recess on the top surface of seat (30).

J. Install spring (20) on shaft portion of orifice and diaphragm assembly (25).

K. Install slip disc (15) in recess on inside of cap (5). Use a nylon rod (800801-T52-1) to aid in seating the disc within the cap recess.

L. Apply a thin film of oxygen lubricant to the preformed packing (10) and install preformed packing in groove on underside of cap (5).

M. Using wrench, part number 800801-T91-2, CAREFULLY install cap (5) in the flow control port of body.

8. ON/OFF Indicator Assembly - (Refer to IPL Figure 4)

NOTE: Step 8. only applies to 804265-01 and 804265-02 FCUs.

Refer to IPL Figure 4 and assemble the ON/OFF indicator assembly (1) as follows:

A. Orient stop cup (45) with cup facing outward and install stop cup on piston assembly (40).

B. Install preformed packing (50) on piston assembly (40). Preformed packing should be captured in groove at the base of the piston assembly and inside the stop cup (45).

C. Install piston components (40, 45 and 50) into underside of housing (55).

8. ON/OFF Indicator Assembly - (Continued)

D. Install the "ON" flag (30) on the portion of the piston assembly (40) that protrudes to the interior of housing (55). Using retaining ring pliers, part number 26705-T-T51-1, install retaining ring (35) to secure the "ON" flag to the piston assembly. When properly installed, the vertical portion of the "ON" flag should be directly opposite the gap in the inside wall of the housing.

E. Position spring (15) such that the rounded spring leg rests in the orifice of piston assembly (40), the straight spring leg faces outward from the housing (55) cavity and the coiled portion of the spring is between the mounting ears that are on the side of the housing.

F. Apply Glyptal #1201 to the threads of setscrew (20). Install the setscrew through the ears that are on the side of housing (55) and also through the coil of spring (15).

G. Install the long leg of "OFF" label (25) into housing (55). When properly installed the long vertical leg will go between the "ON" flag (30) and the inside wall of the housing. The short leg of the label will rest on the edge of the housing.

H. Orient prism lens (10) with prism portion facing the interior of housing (55) and the flat vertical surface of the prism facing the "ON" and "OFF" flags. Install the lens on the housing in such a manner as to capture the straight leg of spring (15) in the hole provided in the lens. The lens will also capture and retain the "OFF" label (25) in position.

J. Install cap (5) on housing (55).

K. Partially remove cap (5) from housing (55); apply sealing compound (Loctite #222) to the threads of the housing and then firmly thread the cap onto the housing.

9. Electrical/Actuation Assembly- (Refer to IPL Figure 5)

Refer to IPL Figure 5 and Install electrical/actuation assembly (1) on body (150 thru - 150C, IPL Figure 1) as follows:

A. Install solenoid assembly (20, IPL Fig. 5) as follows:

(1) Assemble actuation valve components (55 thru 75) as follows:

(a) Install threaded shaft of poppet (70) through seat side of molded valve seat assembly (75).

(b) Install spring (65) such that lower end of spring seats within the recess on surface of molded valve seat assembly (75).

(c) Orient pilot diameter end of lock nut (60) toward spring (65); install lock nut on threads of poppet (70). Pilot diameter of the lock nut (60) shall engage inside diameter of spring (65).

(d) Install cap nut (55) on threaded end of poppet (70).

9. Electrical/Actuation Assembly- (Continued)

A. Install solenoid assembly.... (Continued)

(2) Adjust overall length of assembled actuation valve components (55 thru 75) to 0.870 to 0.880 inches (22.1 to 22.4 millimeters). To maintain the adjusted overall length of the actuation valve components torque lock nut (60) against face of cap nut (55) to **1.5 in•lbs (0.17 N•m)**. If using tool part number 800853-T91-1, Torque the nut to **1.0 in•lbs (0.11 N•m)**.

(3) Install assembled actuation valve components (55 thru 75) in leak test fixture, part number 801130-S58-1. Apply 90 psig (0.62 MPa) to opposite end of leak test fixture; leakage shall not exceed 0.5 cc/minute. Physically unseat poppet (70) from molded valve seat assembly (75) a minimum of five times and recheck for leakage; at no time shall the leakage exceed 0.5 cc/minute.

(4) Install preformed packing (80) in body (150 thru -150C, IPL Fig. 1).

(5) Orient assembled and tested actuation valve components (55 thru 75) with poppet (70) toward body. Install components into body.

(6) With slots on face of seat retainer (50) facing outward, install seat retainer in body to secure assembled actuation valve components (55 thru 75) using wrench part number 804265-S91-1.

(7) Install preformed packing (45) in groove of body. Position solenoid assembly (20) to align with mounting holes in body. Secure solenoid assembly to body with three screws (25) and three lockwashers (30).

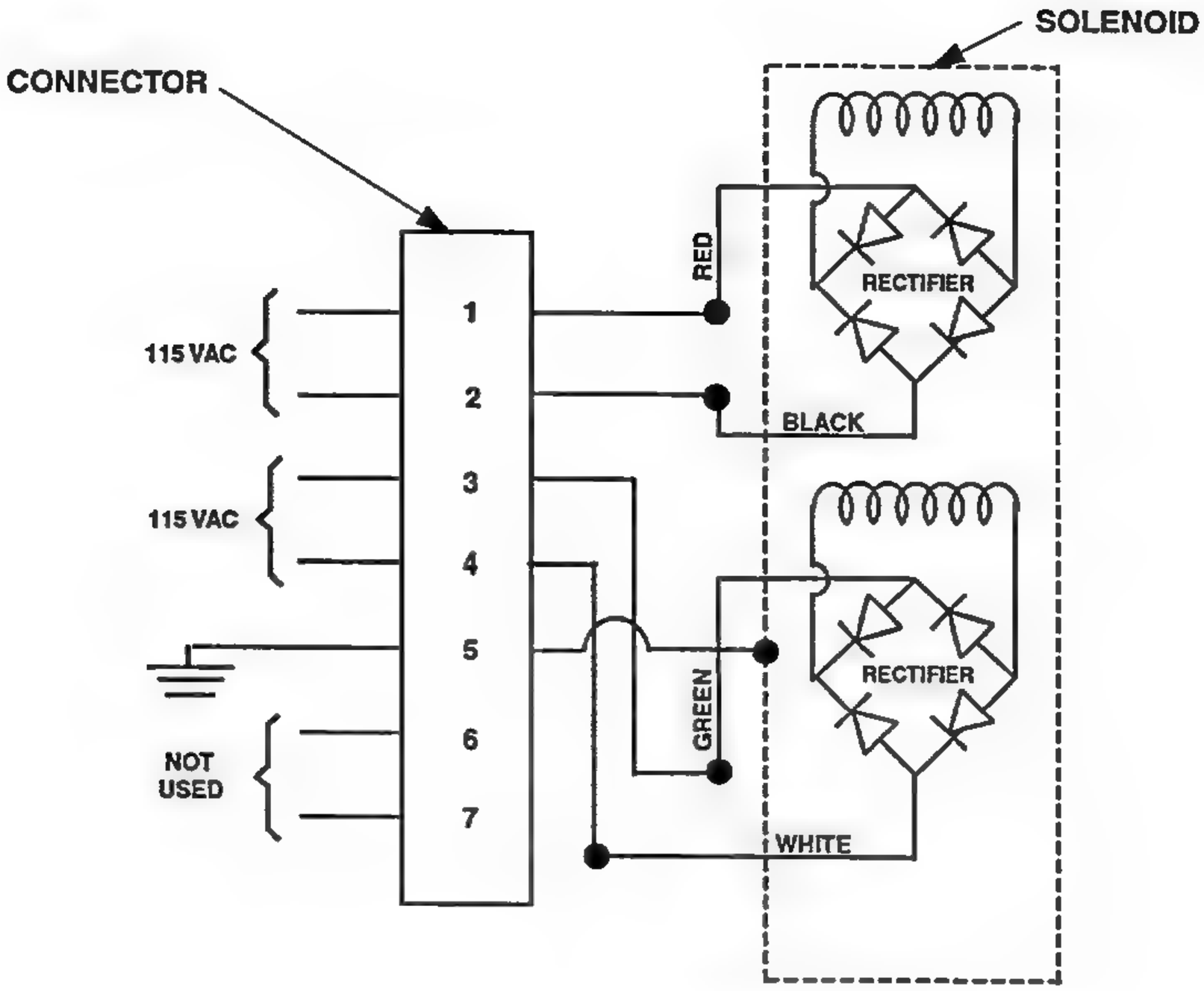
(8) Install setscrew (35) in remaining solenoid assembly (20) mounting hole. Install ground terminal lug (42) on setscrew; secure ground terminal in position with lockwasher (30) and nut (40). Refer to IPL Fig. 5.

B. Refer to Figure 5 and install receptacle connector (5) on body (150 thru -150C, IPL Figure 1) as follows:

(1) Using insertion tool, part number MS24256A16, install the four lead wires from solenoid assembly (20, IPL Fig. 5), and one ground wire onto the receptacle connector terminal pins, 1 thru 5, located on the rear surface of receptacle connector (5), if removed. Refer to Figure 706.

CAUTION: MAKE SURE THAT THE WIRES FROM THE SOLENOID LAY IN THE SLOT OF THE FLOW CONTROL BODY. THIS WILL PREVENT POSSIBLE PINCHING OF THE WIRES AND INCORRECT OPERATION OF THE UNIT.

(2) Secure receptacle connector (5) to body with four screws (10) and four lockwashers (15).



Electrical Schematic
Figure 706

10. Altitude Compensation Assembly - (Refer to IPL Figure 6)

Refer to IPL Figure 6 and install altitude compensation assembly (1) on body (150 thru -150C, IPL Figure 1) as follows:

A. Install altitude pressure sensing aneroid (90, IPL Fig. 6) in body as follows:

(1) Apply Locquic primer T to external threads of altitude pressure sensing aneroid (90); remove excess primer. Allow primer to dry for five minutes.

(2) Apply Loctite Grade C sealing compound to external threads of altitude pressure sensing aneroid (90); remove excess sealing compound. Allow sealing compound to dry for five minutes.

10. Altitude Compensation Assembly - (Continued)

CAUTION: FOR INSTALLATION OF THE ALTITUDE PRESSURE SENSING ANEROID (90, IPL FIGURE 6) USE THE WRENCH FLATS PROVIDED ON THE UNDERSIDE OF THE BELLOWS PORTION OF THE ANEROID BODY. ROTATING THE BELLOWS PORTION OF THE ANEROID ASSEMBLY WILL DAMAGE THE UNIT.

(3) Using wrench, part number 800801-S91-4, thread altitude pressure sensing aneroid (90) into body (150 thru -150C, IPL Fig. 1).

B. Install pilot bellows assembly (95, IPL Fig. 6) in body as follows:

NOTE: Prior to installation and adjustment of the pilot bellows assembly (95), the pilot flow adjusting screw (75, IPL Figure 1) shall have been installed and adjusted in accordance with paragraphs 5.Q and 5.R of this Section.

(1) Install hex jam nut (105) on pilot bellows assembly (95). The hex jam nut should be on that portion of the threaded shaft located immediately below the bellows.

(2) Using stylus, part number 803662-T52-11, install preformed packing (100) in groove between the two threaded sections of the pilot bellows assembly (95) shaft.

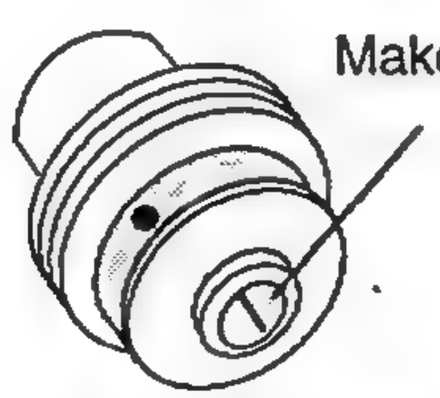
(3) Install push pin (110) in end of pilot bellows assembly (95) shaft. Check fit of the push pin.

NOTE: The push pin shall move freely within the shaft and should fall free when the pilot bellows assembly is inverted.

(4) Orient gasket (130) with rounded surface facing outward; install gasket in pilot bellows assembly port of body.

(5) Using tool, part number 26651-2T52-1, install stem seat assembly (125) in body.

NOTE: If a replacement seat assembly (125) is being installed, use a small safety pin or miniature scribe and make a scratch along the inside surface of the replacement seat assembly (125). This scratch will be from the top to bottom of the inside diameter of the seat assembly at the seat end. Refer to Figure 707.



Replacement Seat Assembly
Figure 707

10. Altitude Compensation Assembly - (Continued)

B. Install pilot bellows assembly (Continued)

(6) Install spring (120) and stem (115) into pilot bellows assembly port of body.

CAUTION: FOR INSTALLATION OF THE PILOT BELLOWS ASSEMBLY (95, IPL FIGURE 6) USE THE WRENCH FLATS PROVIDED ON THE UNDERSIDE OF THE BELLOWS. ROTATING THE BELLOWS PORTION OF THE ASSEMBLY WILL DAMAGE THE UNIT.

(7) Using wrench, part number 800801-S91-4, partially thread pilot bellows assembly (95) in pilot bellows assembly port of body. Adjust pilot bellows assembly in accordance with paragraph 10.C to establish "ground level" setting.

C. Adjust the "ground level" setting for the pilot bellows assembly as follows:

(1) Attach test equipment to the partially assembled Flow Control Unit as shown in Figure 703. Flow control valves #1 and #2, located downstream of the Flow Control Unit outlet, shall be in the CLOSED position.

(2) Apply 500 psig (3.45 MPa) to the INLET port of the Flow Control Unit.

(3) Apply 115 ± 5 VAC to pins 1 & 2 of the electrical connector (5, IPL Figure 5) to actuate the Flow Control Unit.

(4) Using wrench, part number 800801-S91-4, thread pilot bellows assembly (95) in pilot bellows assembly port of body (150 thru -150C, IPL Fig. 1) until a barely audible flow is heard at the OUTLET port of the Flow Control Unit; simultaneously monitor the pressure gauge connected to the OUTLET of the Flow Control Unit for a jump in the psia indication.

(5) Install the lever and support components (25 thru 75, IPL Figure 6) in accordance with paragraph 10.E of this Section.

CAUTION: FOR INSTALLATION OF THE PILOT BELLOWS ASSEMBLY (95, IPL FIGURE 6) USE THE WRENCH FLATS PROVIDED ON THE UNDERSIDE OF THE BELLOWS. ROTATING THE BELLOWS PORTION OF THE ASSEMBLY WILL DAMAGE THE UNIT.

(6) Using wrench, part number 800801-S91-4, rotate pilot bellows assembly (95) either clockwise or counterclockwise, as required, to obtain a "ground level" reading of 1.2 to 2.7 psia (0.01 to 0.02 MPa) as indicated on the pressure gauge connected to the OUTLET of the Flow Control Unit.

(7) Adjust the lever and support components (25 thru 75, IPL Figure 6) in accordance with paragraph 10.F of this Section.

10. Altitude Compensation Assembly - (Continued)

C. Adjust the "ground level" setting (Continued)

(8) Repeat Steps (6) and (7) until the required "ground level" reading of 1.2 to 2.7 psia (0.01 to 0.02 MPa) is obtained, and a clearance of 0.001 inch (0.03 mm) between the adjusting screw (65) and the pilot bellows assembly (95) has been established.

(9) Tighten jam nut (105) to secure setting of the pilot bellows assembly (95); verify that "ground level" reading is correct and established clearance has been maintained.

D. Refer to IPL Figure 6 and assemble lever and support components (25 thru 70) as follows:

(1) Install two adjusting screws (65) in lever (25). The top surface of each adjusting screw shall be flush with the top surface of the lever.

(2) Position lever (25) between arms of lever support (70); insert pin (40) to connect lever to lever support.

NOTE: If a replacement pin (40) is being used, the un-threaded shaft portion of the pin must have a recess made in the shaft by a center punch to create enough interference between the surface of the pin and the lever support (70) to prevent the pin from rotating freely when installed in the lever support.

(3) Install one flat washer (35) and one nut (30) on each end of pin (40) to secure lever (25) between the arms of lever support (70). The lever should move freely between the arms of the lever support.

(4) Install one setscrew (50) and one nut (45) in each arm of lever support (70). Adjust the setscrews to provide 0.001 inches (0.03 mm) of clearance between each side of the lever (25) and the inside surface of the lever support arms. Tighten nuts (45) to lock setscrews (50) in position when proper clearance has been established between the lever and the lever support arms.

(5) Apply Glyptal #1201 to threaded portion of setscrew (60); position spring (55) and install setscrew in lever (25). Adjust setscrew to make the top surface of lever (25) parallel with the base of lever support (70). The top surface of the lever and base of the lever support shall be parallel within 0.003 inches (0.08 mm).

E. Install the assembled lever and support components (25 thru 70) as follows:

(1) Orient the assembled lever and support components (25 thru 70) such that the long arm of lever (25) extends over altitude pressure sensing aneroid (90) and the short arm of the lever extends over pilot bellows assembly (95).

I (2) Secure the lever support (70) to the body (150 thru -150C, IPL Fig. 1) with two screws (75), two lockwashers (80) and two flat washers (85).

10. Altitude Compensation Assembly - (Continued)

F. Adjust lever and support components (25 thru 70) as follows:

NOTE: Prior to adjusting the lever and support components (25 thru 70) it is imperative that the pilot bellows assembly (95) has been properly adjusted for the "ground level" reading indicated in paragraph 10.C of this Section.

(1) Position a 0.001 inch (0.03 mm) shim between the point of the pilot bellows assembly (95) and the bottom surface of adjusting screw (65). Refer to Figure 708.

(2) Rotate adjusting screw (65), as required, to achieve the required clearance.

(3) Check the established clearance between the point of the pilot bellows assembly (95) and the bottom surface of adjusting screw (65) as follows:

(a) While watching the pressure gauge that indicates the "ground level" setting (1.2 to 2.7 psia) slip the 0.001 inch (0.03 mm) shim between the point of the pilot bellows assembly (95) and the bottom surface of adjusting screw (65). There shall be no change in absolute pressure observed on the gauge.

(b) While watching the pressure gauge that indicates the "ground level" setting (1.2 to 2.7 psia), slip the 0.002 inch (0.05 mm) shim between the point of the pilot bellows assembly (95) and the bottom surface of adjusting screw (65). The absolute pressure indicated on the gauge shall increase when the shim is installed.

(c) Remove shim stock; verify that "ground level" indication of 1.2 to 2.7 psia (0.01 to 0.02 MPa) has been maintained.

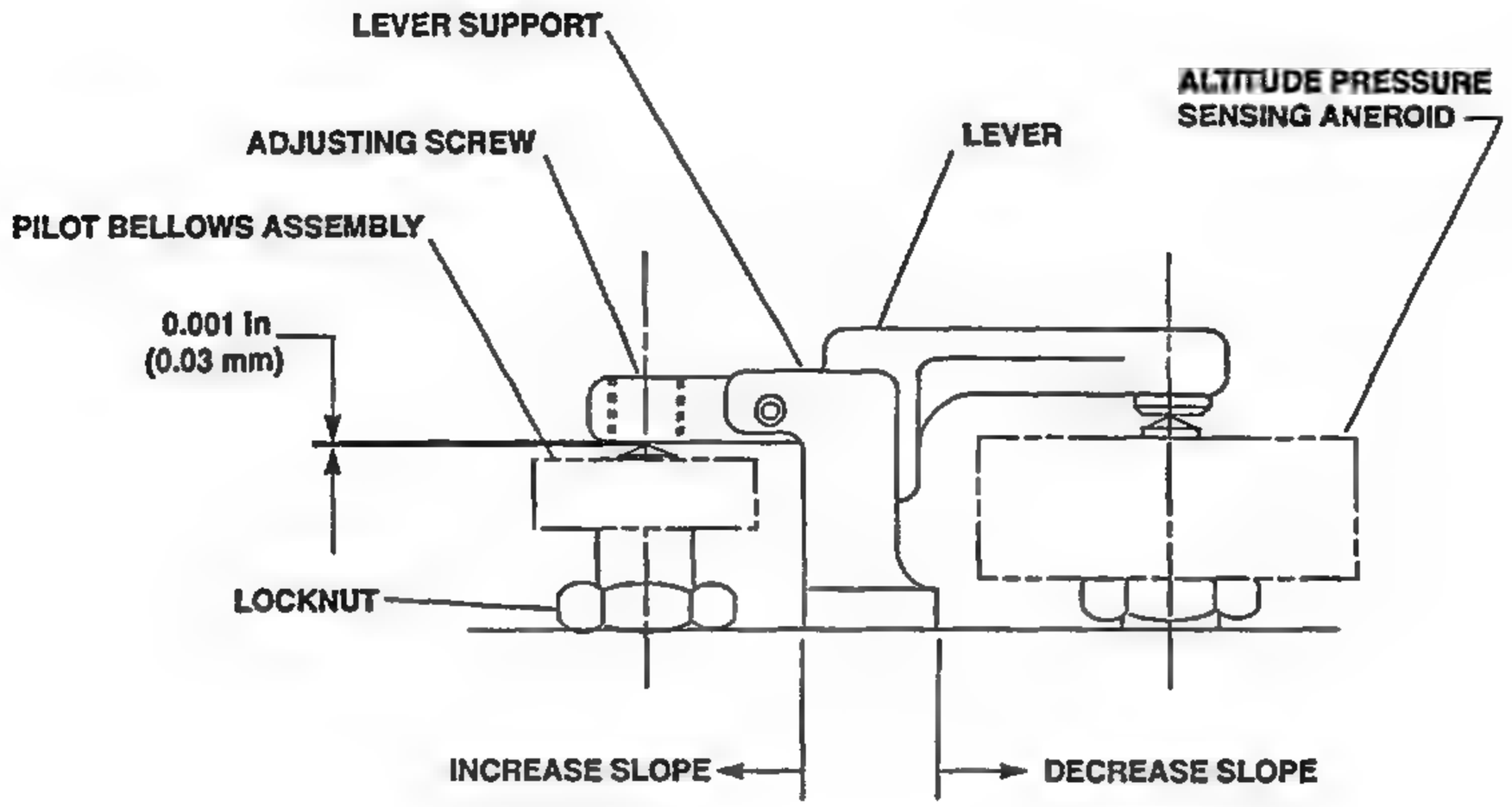
G. Position lever and support components (25 thru 70) to obtain required slope adjustment as follows:

(1) Using clean water, slightly moisten gasket surface of clear plastic test cover, part number 10008853-T58-1; install test cover on body (150 thru -150C, IPL Fig. 1).

(2) With Flow Control Unit attached to test equipment as shown in Figure 104, adjust the vacuum flow control valve to produce an altitude of 43,100 feet (13,140 meters) as indicated on the mercury column.

(3) Using the flow control valve located downstream of the Flow Control Unit establish an outlet flow rate of 25 lpm as indicated on the flowmeter. Record the absolute pressure indicated on the pressure gauge.

(4) Adjust the vacuum flow control valve to produce an altitude of 20,000 feet (6,096 meters) as indicated on the mercury column, while maintaining an outlet flow rate of 25 lpm; record the absolute pressure indicated on the pressure gauge.



Lever Adjustment
Figure 708

10. Altitude Compensation Assembly - (Continued)

G. Position lever and support ..... (Continued)

(5) Subtract the absolute pressure recorded for the 20,000 feet (6,096 meters) from the absolute pressure recorded for 43,100 feet (13,140 meters). The resulting figure is the "slope"; the "slope" shall equal 29.2 ± 0.5 psia. If the calculated "slope" differs from the required "slope" of 29.2 ± 0.5 psia, adjust lever and support components (25 thru 70) as follows:

(a) Bleed vacuum from test cover and remove test cover, part number 10008853-T58-1.

(b) Slightly loosen the two screws (75) that secure lever support (70) to the body.

(c) Move lever support (70) **towards pilot bellows assembly (95) to increase the "slope"**, and **towards aneroid (90) to decrease the "slope".**

(d) Recheck "ground level" adjustment in accordance with paragraph 10.C and adjustment of lever and support components (25 thru 70) in accordance with paragraph 10.F of this section. Correct any adjustments as required before proceeding.

NOTE: Do not continue past this step until all requirements for steps (1) thru (5) above are met.

(6) Bleed vacuum from test cover and remove test cover, part number 10008853-T58-1.

10. Altitude Compensation Assembly - (Continued)

G. Position lever and support ..... (Continued)

(7) Apply Glyptal #1201 at diagonal corners of lever support (70) to secure the adjusted position with respect to the body (150 thru -150C, IPL Fig. 1); apply Grade C Loctite to threads of adjusting screws (65, IPL Fig. 6) to secure their adjusted positions.

H. Install gasket (15) and cover (5) on body using six screws (10). Check for cover leakage as follows:

(1) If removed, attach vacuum hose adapter (20) to the cover (5). Attach vacuum hose to cover mounted vacuum adapter (20).

(2) Adjust the vacuum flow control valve to produce an altitude of 43,100 feet (13,140 meters) as indicated on the mercury column.

(3) Monitor the altitude reading on the mercury column; the altitude shall not decrease more than 100 feet /minute (30.5 meters/minute).

11. Storage Instructions

A. Maintain the Flow Control Unit in an oxygen-clean condition.

B. Seal all ports to prevent foreign matter from entering the unit.

C. DO NOT use preservative coating on any of the components.

D. Store in sealed polyethylene or polyvinyl bag.

FITS AND CLEARANCES

Torque values, critical to the assembly and operation of the 804265 Series Flow Control Units, are listed in Table 801.

Table 801
Torque Values

IPL Figure	Item No.	Nomenclature	Torque Values	
			U.S. (in•lbs)	Metric (N•m)
1	35	Inlet Fitting Union	300	33.9
2	85	Retainer Bearing	90	10.2
	35	Sleeve Retainer	135	15.3
	50	Screw: (Install) (Break-away)	 12 9	 1.4 1.1
3	65	Nut Nut (using tool # 800853-T91-1)	6.0 4.5	0.68 0.51
5	60	Nut Nut (using tool # 800853-T91-1)	1.5 1.0	0.17 0.11

SPECIAL TOOLS, FIXTURES AND TEST EQUIPMENT

Special tools and/or equipment required for assembly/disassembly of the FCU are listed in Table 901. Special test equipment required for testing of the FCU are presented in Table 902. Figure 901 illustrates some of the special tools listed in Table 901.

Table 901
Special Tools

ITEM No.	PART NUMBER	PART NAME	APPLICATION
1	MS24256A16	Insertion Tool	Install lead wires on connector (5, IPL Fig. 5) Commercially available.
2	22504-T58-2	Test Plug	Test plug for pilot bellows assembly port
3	26651-2T52-1	Wrench	Remove / install seat assembly (125, IPL Fig. 6)
4	26705-T-T51-1	Pliers	Remove / install retaining ring (35, IPL Fig. 4)
5	800801-S52-1	Wrench	Remove / install sleeve retainer (35, IPL Fig. 2)
6	800801-S91-4	Wrench	Adjust Bellows Assembly (95, IPL Fig. 6) and Aneroid (90, IPL Fig. 6)
7	800801-T52-7	Rod	Install inlet screen filter (45, IPL Fig. 1)
8	800801-T52-1	Rod	Install test port filter (60, IPL Fig. 1)
9	800801-T91-1	Wrench	Remove / install flow control valve assembly (50, IPL Fig. 3)
10	800801-T91-2	Wrench	Remove / install surge valve cap (5, IPL Fig. 3)
11	800801-T91-3	Wrench	Remove / install cap assembly (15, IPL Fig. 2)
12	800853-T51-1	Check Fixture	Check flow control valve assembly dimensions
13	800853-T91-1	Crowfoot extension	Torque nut (60, IPL Fig. 5)
14	801130-S58-1	Leak Test Fixture	Test for leakage of actuation valve components (55 thru 75, IPL Fig. 5)
15	803662-T52-10	Stylus	Application of Oxygen Lubricant
16	803662-T52-11	Stylus	Application of Preformed Packing
17	804265-S91-1	Wrench	Remove / install seat retainer (50, IPL Fig.5)
18	10001630-T91-1	Wrench	Remove / install surge valve seat (30, IPL Fig. 3)
19	10008853-T58-1	Test Cover	Test cover for lever support (70, IPL Fig. 6)

NOTES: Except for item 1, all above tools are manufactured by Scott Aviation (V53655). Equivalent tools may be used for listed items.

Table 902
Special Test Equipment

NOMENCLATURE	PART NO.	MANUFACTURER (W/ Vendor Code)
Regulator, Oxygen (2 required)	PR55-1A51H9L151	Vemco Corp. (Go, Inc.) San Dimas, CA 91773-2925 (V62527)
Pressure Gauge (0-2000 PSI) (2 required) (0-200 PSI)	1403 Series 1403 Series	Ametek (U.S. Gauge) Sellersville, PA 18960 (V61349)
Flow Control Valve (2 required)	B18VF8	Whitey Co. Highland Heights, OH 44143 (V12623)
Flowmeter (200-2000 lpm) Flowmeter (0.5-50 ccm)	1110CM41CGAA 1110CC21ABGAA	Brooks Instruments Statesboro, GA 30458 (V91556)
Hipot Tester and Megohmeter (AC/DC)	Model 303A	Hipotronics, Inc. Brewster, NY 10509 (V25284)
AC Power Supply (Variable, 0-280 VAC)	Type 3PN216C	Superior Electric Co. Bristol, CT (V58474)
Solenoid Blank (Pilot Circuit Adapter Plate)	804265-S58-1	Scott Aviation Lancaster, NY 14086 (V53655)
NOTES: Equivalent test equipment may be substituted.		

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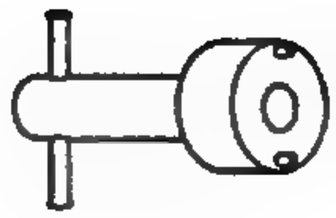

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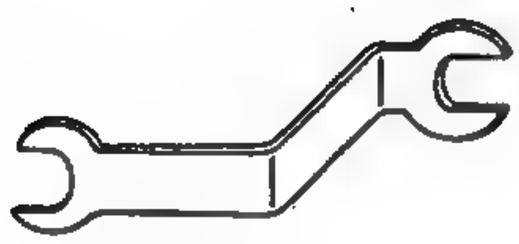

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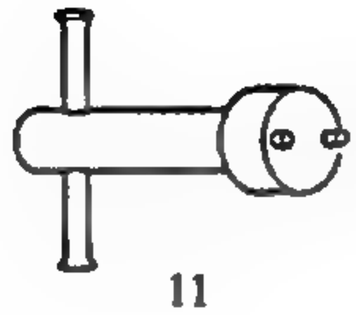

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9

Special Tools and Fixtures
Figure 901

ILLUSTRATED PARTS LIST

1. Introduction

This Illustrated Parts List section shows the illustrations and the authorized replacement parts for the 804265 Series Flow Control Units.

A. How To Use This Section:

(1) If you do not know the part number you need:

(a) Find the part in the applicable figure

(b) Note the ITEM number used for the part

(c) Use the ITEM number to find the authorized replacement part number.

(2) If you know the part number, refer to the figure to be sure that the part illustration is the same as the part that you need.

B. Numerical Index

The Numerical index is used to locate parts in the unit when only the part number is known. The Numerical Index provides a cross reference of numbers that include: Airline Stock number, Figure #, Item #, and the number of parts required.

The character-sort-order for a part number is: dashes first, letters A thru Z second, and then numbers 0 thru 9.

C. Description of the Illustrated Parts List Entries

The section describes the information found in the Illustrated Parts List (IPL).

(1) FIG. ITEM

(a) Items not Illustrated

Items that are not shown in the figure have a dash in front of the item number.

(b) Alpha Variant Item Numbers

Alpha variants that are A-Z (except I and O) added after the item number show configuration differences in items, optional Parts, parts that have had product improvement, and/or added items.

(2) PART NUMBER

The numbers in this column are the part numbers given by Scott to index all the items in the assembly, or are the part number of the original manufacturer.

If a part number that Scott gives an item is different than the supplier part number, the supplier number is shown in the PART NUMBER column and the Scott Part Number (SPN) is shown in the NOMENCLATURE column.

(3) AIRLINE STOCK NUMBER

This column has space available for a number, up to eleven characters in length, given by the airline

(4) NOMENCLATURE

(a) Level of Indenture

This information shows the relationship of one part to another. An example is shown:
123 (Assembly Number)

• Subassembly Top Number
• Attaching Parts for the Subassembly Top Number or Assembly Item
***
• Assembly Item

• • Sub-Subassembly Top Number
• • Attaching Parts for the Sub-Subassembly Top # or Subassembly Item
***
• • Subassembly Item

NOTE: The three asterisks are used to separate the attaching parts of one Item from another Item.

(b) Abbreviations

The abbreviations in this column are shown in the List of Abbreviations in this section.

The following common abbreviations are found in this column:

NP	This is a part that is not available and NP is shown in the two last spaces of the Nomenclature column.
OPT	The part is equivalent to the primary part and can be interchanged with the other parts for the same effectivity code.
REPLS	The part in the Part Number column replaces and can be changed with the item that is replaced.
SUPSDS	The part in the Part Number column replaces and cannot be changed with the old item that is superseded.

(5) EFF. CODE

When the IPL applies to more than one top assembly, each top assembly is identified with an alpha code (A, B, C, etc.).

If a part number subassembly or item is identified with an alpha code, that part can only be used with the top assembly that has that EFF. CODE.

Any item or subassembly that does not have an EFF. CODE, can be used on any top assembly.

(6) UNITS PER ASSEMBLY

This column shows the number of parts that are used in the assembly.

D. Vendor Codes

The following is a list of the vendors that supply items in this manual:

VENDOR CODES

CODE	NAME AND ADDRESS
V2D335	Standard Pressed Steel Co. Jenkintown PA
V27687	Greer-Smyrna Inc. Smyrna, TN
V50208	Advance Wire Products Addison, IL
V53655	Scott Aviation Lancaster, NY
V72962	Elastic Stop Nut Div. of Harvard Industrial Inc. Union, NJ
V79136 (Replaces V89462)	Waldes Truarc Inc. Div. of Seeger Inc. Somerset NJ
V91556	Brooks Instruments Statesboro, GA

E. List of Abbreviations

The following is a list of abbreviations found in this section:

ABBREV.	DEFINITION OF TERM
ALT	Alternate
ASSY	Assembly
BKDN	Breakdown
COMP	Compensation
CRES	Corrosion Resistant Steel
FIG	Figure
ID	Identification, Internal Diameter
NHA	Next Higher Assembly
NP	Not Provisioned (also Not Procurable). This is a part that is not available and NP is shown in the two last spaces of the Nomenclature column.
OPT	Optional. The part is equivalent to the primary part and can be interchanged with the other parts for the same effectivity code.
REPLS	Replaces. The part in the Part Number column replaces and can be changed with the item that is replaced.
RF	Reference
SPN	Scott Part Number
SUPSDS	Supersedes. The part in the Part Number column replaces and cannot be changed with the old item that is superseded.
W/	With
W/O	Without

F. Numerical Index

The following table gives the numerical index for this section:

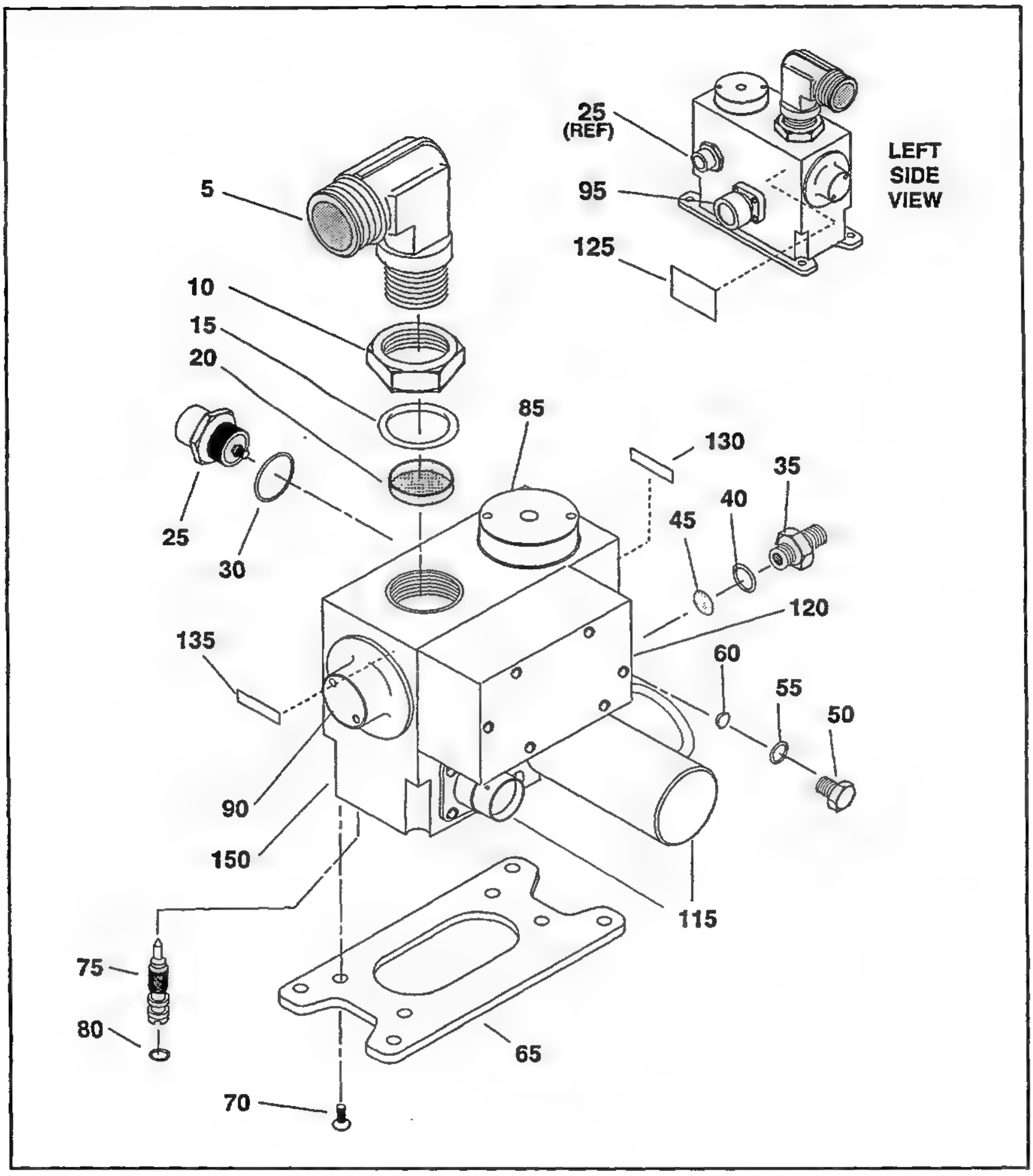
PART NUMBER	AIRLINE STOCK No.	FIGURE	ITEM No.	TTL REQ'D
AN316C5		6	105	1
AN500-4-4		5	10	4
AN500-4-5		4	60	RF
AN500-6-6		6	75	2
AN500-8-6		5	25	3
AN565AC4H3		6	50	1
AN565AC4H4		2	5	1
AN565AC8H16		5	35	1
AN924-216		1	10	1
AN960-3		6	35	2
MS15795-805		6	85	2
MS35333-71		6	80	2
MS35338-40		1	105	4
		4	65	RF
		5	15	4
MS35338-42		5	30	4
MS35649-244		3	65	1
		6	45	2
MS35649-284		5	40	1
MS4264R14B7PNX		5	-5	1
NONPROC1		1	85	1
		2	1	RF
NONPROC2		1	90	1
		3	1	RF
NONPROC3		1	-90A	1
		3	-1A	RF
NONPROC4		1	115	1
		5	1	RF
NONPROC5		1	120	1
		6	1	RF
VD261-0109-0105		1	-40A	-

PART NUMBER	AIRLINE STOCK No.	FIGURE	ITEM No.	TTL REQ'D
10001571		6	95	1
10001572		6	90	1
10001626		2	40	1
10001627		2	35	1
10001630		3	30	1
10001631		6	110	1
10001632		3	45	1
10001634		3	-30A	1
10001635		6	130	1
10001636		3	55	1
10001639		2	25	1
10001641		2	55	1
10001647		3	60	1
10001649		3	70	1
10001694		3	5	1
10001722		2	20	1
10001723		2	30	1
10001786		6	40	1
10001793		6	120	1
10001801		6	50	2
10002610		6	65	2
10007548		6	25	1
10007549		6	70	1
10008837		1	-140	1
10008838		2	100	1
10008841		2	90	1
10008842		2	95	1
10008846		2	65	1
10008847		5	50	1
10008848		5	70	1
10008852		5	55	1
10008853		6	5	1
10008854		6	20	1
10008856		1	75	1
10008857		1	65	1
10008894		6	15	1
10008895		2	75	1
10008896		2	50	1
10008903		2	80	1
10008908		1	5	1
10008949		1	-140A	1

PART NUMBER	AIRLINE STOCK No.	FIGURE	ITEM No.	TTL REQ'D
10008956		1	20	1
10008981		1	15	1
10008985		1	45	1
10008986		1	60	1
10009000		5	20	1
10009020		1	-110	1
		4	70	RF
10009023		1	125	1
10009024		1	-125A	1
10009033		1	130	1
10009034		1	135	1
10009156		4	40	1
16991L3F6P35		1	-70A	-
18000-00		4	50	1
18002-00		5	80	1
18021-00		2	105	1
18025-00		5	45	1
18057-00		3	35	1
18062-00		2	70	1
18099-00		3	80	1
19486-00		1	55	1
		6	100	1
19487-00		1	30	1
19488-00		1	80	1
229COMPS6047		3	10	1
25286-00		3	20	1
25288-00		1	50	1
25298-00		6	135	1
25306-00		6	55	1
25477-00		6	60	1
25481-00		5	65	1
25530-02		3	25	1
25698-00		5	60	1
25882-00		3	15	1
26563-00		4	45	1
26707-00		4	15	1
26804-00		4	55	1
26819-00		4	30	1
26821-00		4	25	1

PART NUMBER	AIRLINE STOCK No.	FIGURE	ITEM No.	TTL REQ'D
26823-00		4	10	1
26824-00		4	5	1
2800B2A		1	55	1
		6	100	1
2800B8A		1	30	1
2800C12A		5	80	1
2800C13A		2	105	1
2800C15A		3	80	1
2800C21A		2	70	1
2800C22A		5	45	1
2800C28A		3	35	1
2800C8A		1	8	1
2837-06		2	10	1
28846-01		6	115	1
321017		5	42	1
33349-038		5	35	1
33359-213		5	10	4
33359-214		1	-100	4
		4	60	RF
33359-223		6	10	6
33359-228		6	75	2
33359-243		5	25	3
33459-040		1	-105	4
		4	65	RF
		5	15	4
33459-042		5	30	4
33465-010		3	65	1
33465-012		5	40	1
33480-216		1	10	1
5101-18ZD		4	35	1
56760-00		4	20	1
57601-00		1	35	1
58526-00		6	30	2
59317-00		2	60	1
59333-00		3	10	1
59334-00		3	40	1
59388-01		5	5A	1
59626-00		1	70	4
59776-00		1	40	1

PART NUMBER	AIRLINE STOCK No.	FIGURE	ITEM No.	TTL REQ'D
800853-00		3	-50	1
800854-00		3	75	1
800855-00		2	15	1
800874-00		6	125	1
803808-01		5	75	1
804265-01		1	1	RF
804265-02		1	-1A	RF
804265-03		1	-1B	RF
804265-04		1	-1C	RF
804312-01		2	85	1
804317-01		2	-45	1
804320-01		1	25	1
804418-01		1	95	1
		4	1	RF
804504-01		1	150	1
804504-02		1	-150A	1
804504-03		1	-150B	1
804504-04		1	-150C	1
92-1660-256		6	-30B	-
92-1660-26		6	-30A	-



Flow Control Unit
Figure 1

FIG. ITEM	PART NUMBER	AIRLINE STOCK NO.	NOMENCLATURE 1234567	EFF. CODE	UNITS PER ASSY
1 -1	804265-01		FLOW CONTROL UNIT (W/ SURGE CONTROL)	A	RF
-1A	804265-02		FLOW CONTROL UNIT (W/O SURGE CONTROL)	B	RF
-1B	804265-03		FLOW CONTROL UNIT (W/ SURGE CONTROL AND NO ON/OFF INDICATOR)	C	RF
-1C	804265-04		FLOW CONTROL UNIT (W/O SURGE CONTROL AND NO ON/OFF INDICATOR)	D	RF
5	10008908		• ELBOW		1
10	AN924-216		• NUT, HEX, 1-5/16" x 12 (SPN 33480-216)		1
15	10008981		• PACKING, PREFORMED		1
20	10008956		• SCREEN, OUTLET		1
25	804320-01		• ASSEMBLY, RELIEF VALVE		1
30	2800B8A		• PACKING, PREFORMED (ALT SPN 19487-00)		1
35	57601-00		• UNION - INLET FITTING		1
40	59776-00		• SEAL, BOSS - INLET		1
-40A	VD261-0109-0105		• • (V50208), OPT		
45	10008985		• FILTER, SCREEN		1
50	25288-00		• PLUG, TEST		1
55	2800B2A		• PACKING, PREFORMED (ALT SPN 19486-00)		1
60	10008986		• FILTER		1
65	10008857		• PLATE, MOUNTING		1
			ATTACHING PARTS		
70	59626-00		• SCREW, FLAT HEAD - HEX SOCKET, 82 DEGREE		4
-70A	16991L3F6P35		• • (V2D335), OPT		
			***		
75	10008856		• SCREW, ADJUSTING -PILOT FLOW		1
80	2800C8A		• PACKING, PREFORMED (ALT SPN 19488-00)		1
85	NONPROC1		• FIRST STAGE ASSEMBLY (REFER TO FIGURE 2 FOR BKDN) NP		1

- ITEM NOT ILLUSTRATED

	FIG. ITEM	PART NUMBER	AIRLINE STOCK NO.	NOMENCLATURE 1234567		EFF. CODE	UNITS PER ASSY
	1 -						
I	90	NONPROC2		• FLOW/SURGE ASSEMBLY (REFER TO FIGURE 3 FOR BKDN)	NP	A,C	1
I	-90A	NONPROC3		• FLOW/SURGE ASSEMBLY (REFER TO FIGURE 3 FOR BKDN)	NP	B,D	1
I	95	804418-01		• ON - OFF INDICATOR ASSY (REFER TO FIGURE 4 FOR BKDN)		A,B	1
				ATTACHING PARTS			
I	-100	AN500-4-5		• SCREW, FILLISTER HEAD, 4-40 x 5/16" (SPN 33359-214) (REFER TO FIG. 4 FOR ILLUSTRATION)		A,B	4
I	-105	MS35338-40		• WASHER, LOCK-SPLIT , #4 (SPN 33459-040) (REFER TO FIG. 4 FOR ILLUSRATION)		A,B	4
				***			
I	-110	10009020		• GASKET- ON-OFF IND ASSY (REFER TO FIG. 4 FOR ILLUSTRATION)		A,B	1
I	115	NONPROC4		• ELECTRICAL/ACTUATION ASSY, (REFER TO FIGURE 5 FOR BKDN)	NP		1
	120	NONPROC5		• ALTITUDE COMPENSATION ASSY, (REFER TO FIGURE 6 FOR BKDN)	NP		1
I	125	10009023		• LABEL, IDENTIFICATION		A,C	1
I	-125A	10009024		• LABEL, IDENTIFICATION		B,D	1
	130	10009033		• LABEL, INLET			1
	135	10009034		• LABEL, OUTLET			1
I	-140	10008837		DELETED			
I	-140A	10008949		DELETED			
I	150	804504-01		• BODY, FLOW CONTROL - W/ SURGE		A	1
I	-150A	804504-02		• BODY, FLOW CONTROL - W/O SURGE		B	1
I	-150B	804504-03		• BODY, FLOW CONTROL - W/ SURGE, W/O ON/OFF INDI-CATOR		C	1
I	-150C	804504-04		• BODY, FLOW CONTROL - W/O SURGE, W/O ON/OFF INDI-CATOR		D	1

- ITEM NOT ILLUSTRATED

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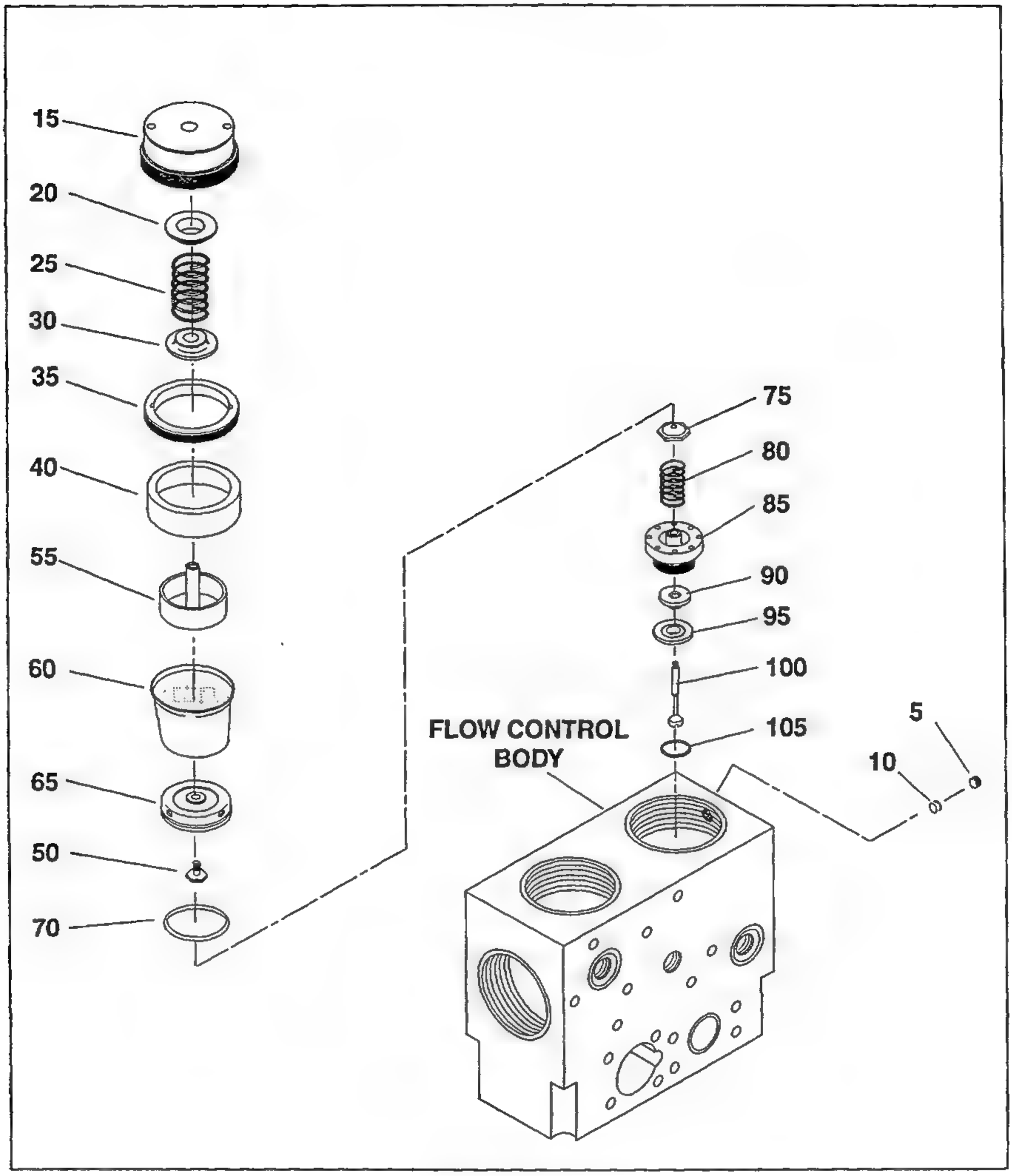


First Stage Assembly
Figure 2

FIG. ITEM	PART NUMBER	AIRLINE STOCK NO.	NOMENCLATURE 1234567	EFF. CODE	UNITS PER ASSY
2 -1	NONPROC1		• FIRST STAGE ASSEMBLY NP (REFER TO FIGURE 1 FOR NHA)		RF
I 5	AN565AC4H4		•• SETSCREW, HEADLESS, FLAT POINT, #4-40 X 1/4" (SPN 33349-009)		1
10	2837-06		•• INSERT - THREAD LOCKING 0.078" DIAM, 0.065 LENGTH		1
15	800855-00		•• CAP ASSEMBLY		1
20	10001722		•• WASHER, THRUST - CAP		1
25	10001639		•• SPRING		1
30	10001723		•• WASHER, THRUST - PISTON		1
35	10001627		•• RETAINER, SLEEVE		1
40	10001626		•• SLEEVE		1
-45	804317-01		•• DIAPHRAGM ASSEMBLY		1
50	10008896		••• SCREW, HOLD DOWN		1
55	10001641		••• PISTON		1
60	59317-00		••• BELLOFRAM		1
65	10008846		••• DAMPER		1
70	2800C21A		•• PACKING, PREFORMED (ALT SPN 18062-00)		1
75	10008895		•• PIVOT, SPRING		1
80	10008903		•• SPRING, HELICAL, CRES.		1
85	804312-01		•• RETAINER BEARING ASSY		1
90	10008841		•• SEAT		1
95	10008842		•• SPACER, SEAT		1
100	10008838		•• POPPET		1
105	2800C13A		•• PACKING, PREFORMED (ALT SPN 18021-00)		1

- ITEM NOT ILLUSTRATED

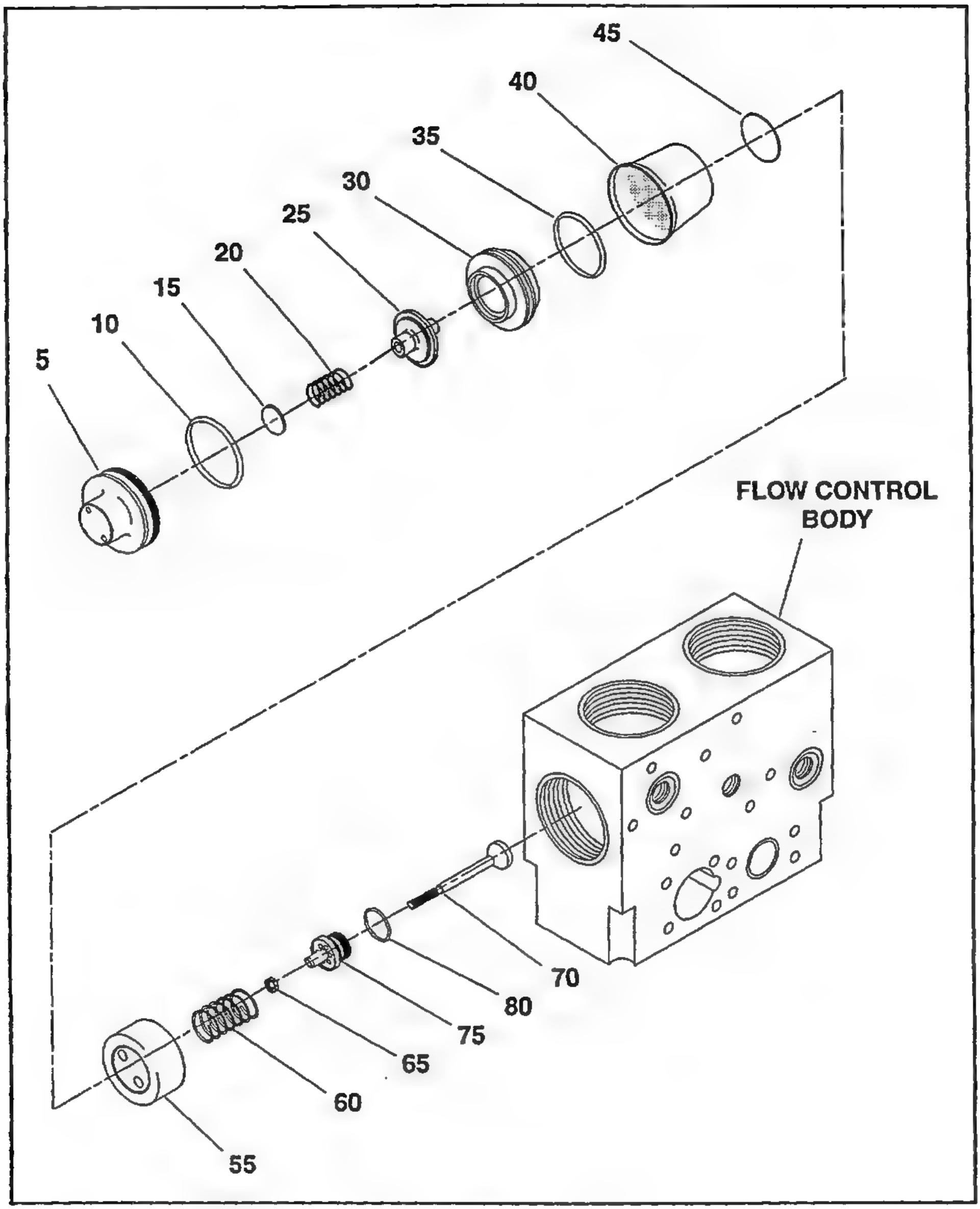
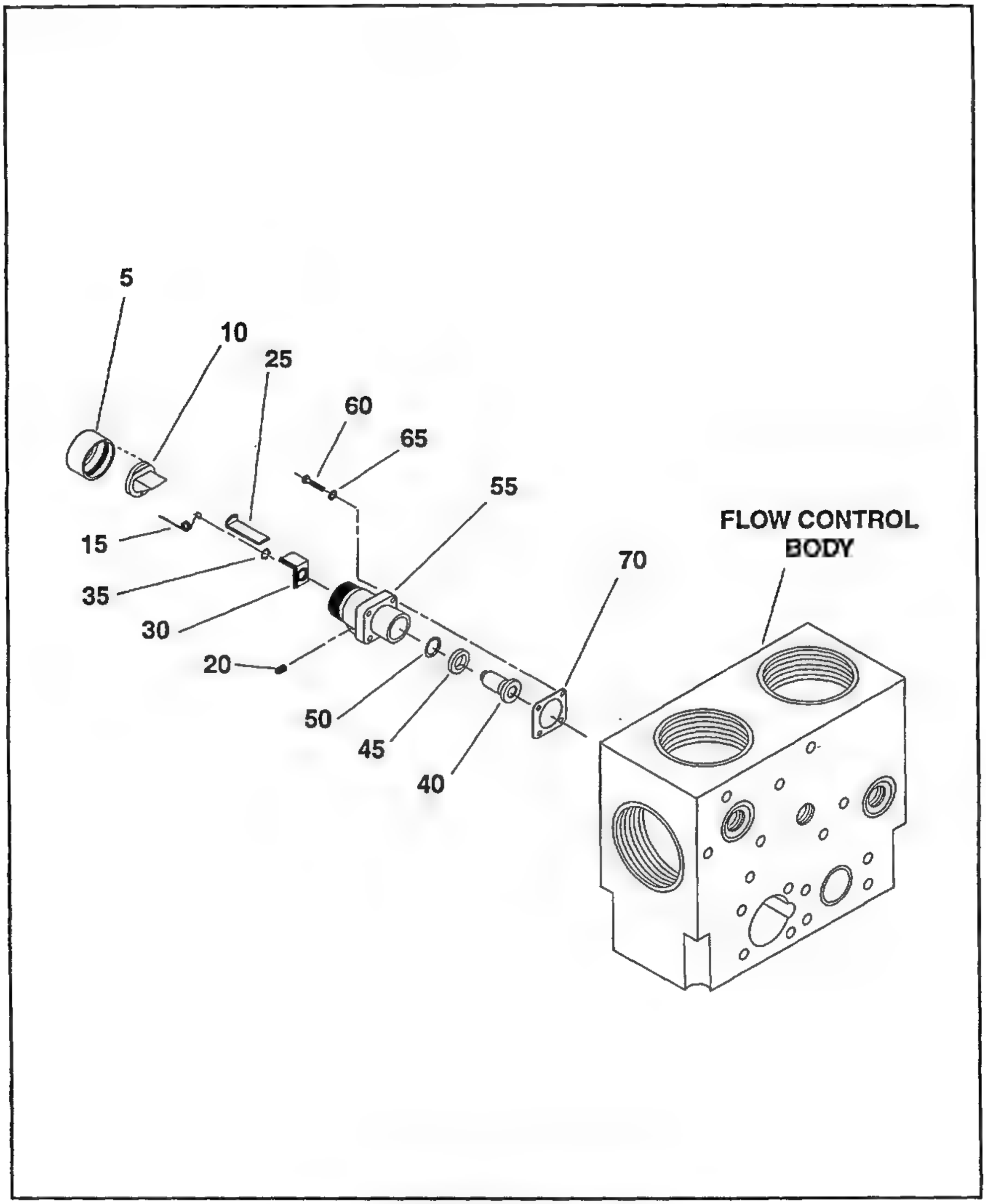


Figure 3
Flow / Surge Assembly

FIG. ITEM	PART NUMBER	AIRLINE STOCK NO.	NOMENCLATURE 1234567		EFF. CODE	UNITS PER ASSY
3 -1	NONPROC2		• FLOW/SURGE ASSEMBLY (REFER TO FIGURE 1 FOR NHA)	NP	A	RF
-1A	NONPROC3		• FLOW/SURGE ASSEMBLY (REFER TO FIGURE 1 FOR NHA)	NP	B	RF
5	10001694		•• CAP - SURGE VALVE			1
10	229COMPS6047		•• PACKING, PREFORMED (SPN 59333-00)			1
15	25882-00		•• DISC, SLIP		A	1
20	25286-00		•• SPRING		A	1
25	25530-02		•• ORIFICE & DIAPHRAGM ASSY		A	1
30	10001630		•• SEAT - SURGE VALVE		A	1
-30A	10001634		•• PLUG - FLOW CONTROL		B	1
35	2800C28A		•• PACKING, PREFORMED (ALT SPN 18057-00)			1
40	59334-00		•• BELLOFRAM -FLOW CONTROL			1
45	10001632		•• PLATE, DISC			1
-50	800853-00		•• VALVE ASSY -FLOW CONTROL			1
55	10001636		••• PISTON			1
60	10001647		••• SPRING			1
65	MS35649-244		••• NUT, #4-40 (SPN 33465-010)			1
70	10001649		••• STEM			1
75	800854-00		••• GUIDE & SEAT ASSY			1
80	2800C15A		•• PACKING, PREFORMED (ALT SPN 18099-00)			1

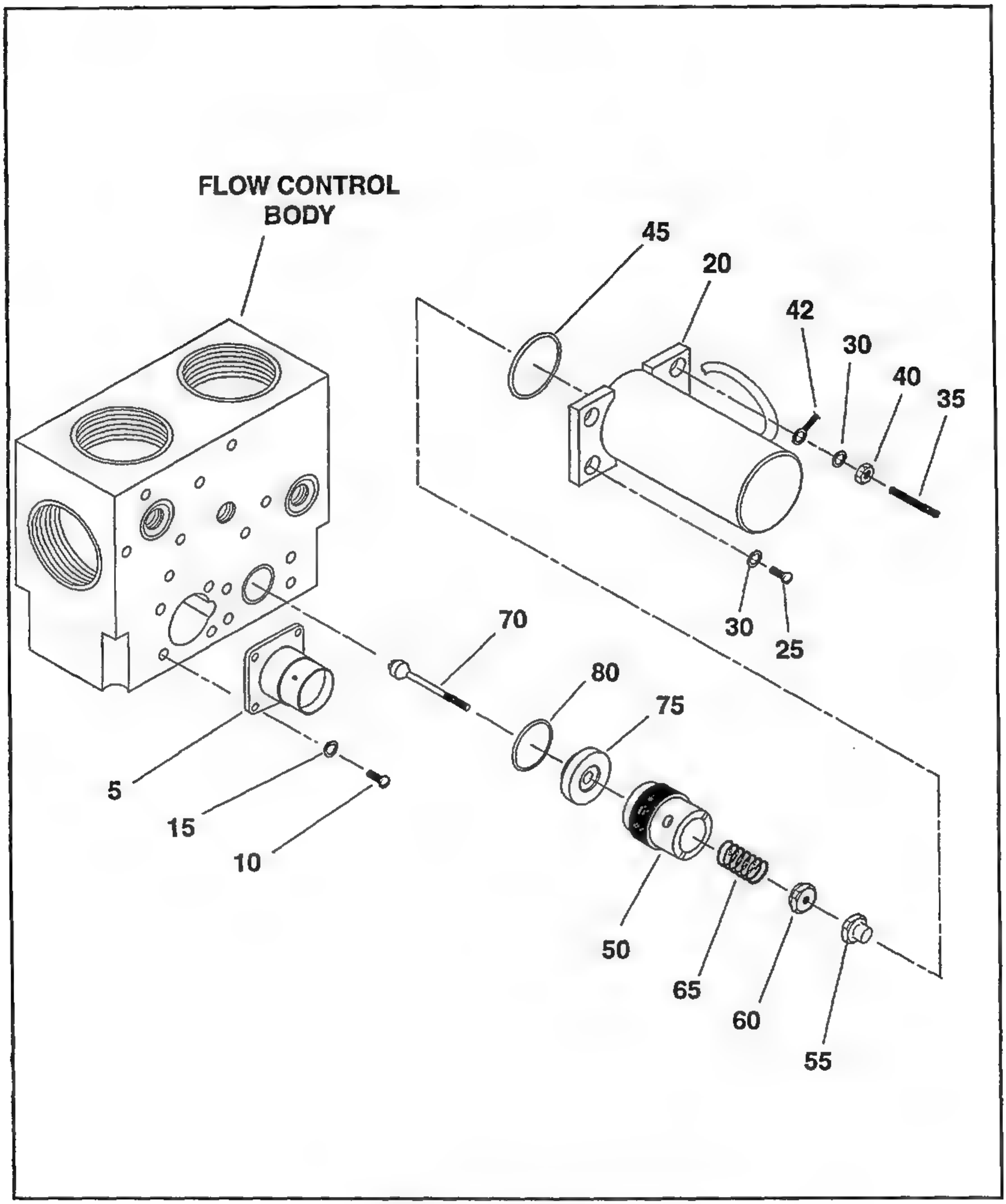
- ITEM NOT ILLUSTRATED



ON / OFF Indicator Assembly
Figure 4

FIG. ITEM	PART NUMBER	AIRLINE STOCK NO.	NOMENCLATURE 1234567	EFF. CODE	UNITS PER ASSY
4 -1	804418-01		• ON - OFF INDICATOR ASSY (REFER TO FIGURE 1 FOR NHA) (FOR ITEMS -1, -1A, FIGURE 1 ONLY)		RF
5	26824-00		•• CAP, FLOW INDICATOR		1
10	26823-00		•• LENS, PRISM		1
15	26707-00		•• SPRING, HELICAL - TORSION		1
			ATTACHING PARTS		
20	56760-00		•• SETSCREW, HEX SOCKET, CUP POINT		1
			***		
25	26821-00		•• "OFF" LABEL		1
30	26819-00		•• "ON" FLAG		1
			ATTACHING PARTS		
35	5101-18ZD		•• RING, RETAINING (V79163) (SPN 56730-00)		1
			***		
40	10009156		•• PISTON ASSEMBLY		1
45	26563-00		•• CUP, STOP		1
50	18000-00		•• PACKING, PREFORMED		1
55	26804-00		•• HOUSING		1
60	AN500-4-5		• SCREW, FILLISTER HEAD (REFER TO ITEM -100, FIG.1)		RF
65	MS35338-40		• WASHER, LOCK - SPLIT (REFER TO ITEM -105, FIG.1)		RF
70	10009020		• GASKET (REFER TO ITEM -110, FIG.1)		RF

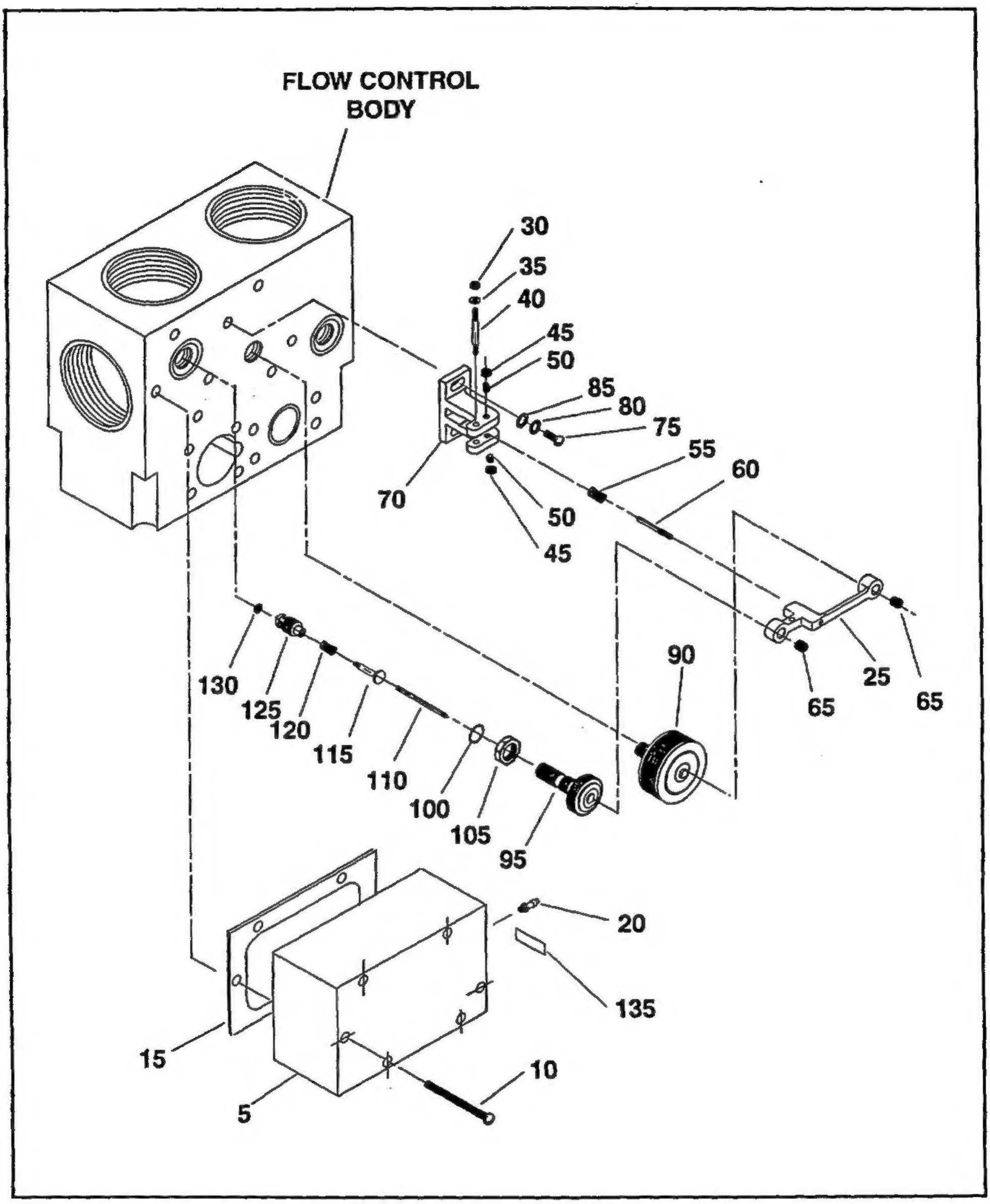
- ITEM NOT ILLUSTRATED



Electrical/Actuation Assembly
Figure 5

FIG. ITEM	PART NUMBER	AIRLINE STOCK NO.	NOMENCLATURE 1234567	EFF. CODE	UNITS PER ASSY
5 -1	NONPROC4		• ELECTRICAL/ACTUATION ASSY - (REFER TO FIGURE 1 FOR NHA) NP		RF
-5	MS4264R14B7PNX		•• CONNECTOR, RECEPTACLE (SUPSD BY ITEM 5A)		1
5A	59388-01		•• CONNECTOR, RECEPTACLE (SUPSDS ITEM -5)		1
			ATTACHING PARTS		
10	AN500-4-4		•• SCREW, FILLISTER HEAD, #4-40 x 1/4" (SPN 33359-213)		4
15	MS35338-40		•• WASHER, LOCK - SPLIT, #4 (SPN 33459-040)		4
			***		
20	10009000		•• SOLENOID ASSEMBLY		1
			ATTACHING PARTS		
25	AN500-8-6		•• SCREW, FILLISTER HEAD, #8-32 x 3/8" (SPN 33359-243)		3
30	MS35338-42		•• WASHER, LOCK - SPLIT, #8 (SPN 33459-042)		4
35	AN565AC8H16		•• SETSCREW, HEX SOCKET - FLAT POINT, #8-32 x 1" (SPN 33349-038)		1
40	MS35649-284		•• NUT, PLAIN - HEX, #8-32 (SPN 33465-012)		1
			***		
42	321017		•• LUG, TERMINAL		1
45	2800C22A		•• PACKING, PREFORMED (ALT SPN 18025-00)		1
50	10008847		•• RETAINER, SEAT		1
55	10008852		•• NUT, CAP		1
60	25698-00		•• NUT, LOCK		1
65	25481-00		•• SPRING		1
70	10008848		•• POPPET		1
75	803808-01		•• VALVE SEAT ASSY, MOLDED		1
80	2800C12A		•• PACKING, PREFORMED (ALT SPN 18002-00)		1

- ITEM NOT ILLUSTRATED



Altitude Compensation Assembly
Figure 6

FIG. ITEM	PART NUMBER	AIRLINE STOCK NO.	NOMENCLATURE 1234567	EFF. CODE	UNITS PER ASSY
6 -1	NONPROC5		• ALTITUDE COMPENSATION ASSY - (REFER TO FIGURE 1 FOR NHA) NP		RF
5	10008853		•• COVER - ANEROIDS		1
			ATTACHING PARTS		
10	33359-223		•• SCREW, FILLISTER HEAD, #4-40 x 1.5"		6
			***		
15	10008894		•• GASKET		1
20	10008854		•• ADAPTER - VACUUM HOSE		1
25	10007548		•• LEVER		1
			ATTACHING PARTS		
30	58526-00		•• NUT, MINIATURE - HEX, #2-56		2
-30A	92-1660-26		••• (V72962) OPT		
-30B	92-1660-256		••• (V27687) OPT		
35	AN960-3		•• WASHER, FLAT, #3 (SPN 33451-002)		2
40	10001786		•• PIN		1
45	MS35649-244		•• NUT, PLAIN - HEX (SPN 33465-010)		2
50	AN565AC4H3		•• SETSCREW, #4-40 x 3/16" (SPN 10001801)		2
			***		
55	25306-00		•• SPRING - COMPENSATOR		1
60	25477-00		•• SETSCREW		1
65	10002610		•• SCREW, ADJUSTING		2
70	10007549		•• SUPPORT, - LEVER		1
			ATTACHING PARTS		
75	AN500-6-6		•• SCREW, FILLISTER HEAD, #6-32 x 3/8" (SPN 33359-228)		2

- ITEM NOT ILLUSTRATED

FIG. ITEM	PART NUMBER	AIRLINE STOCK NO.	NOMENCLATURE 1234567	EFF. CODE	UNITS PER ASSY
6 -					
80	MS35333-71		•• WASHER, TOOTH - LOCK, #6 (SPN 33460-071)		2
85	MS15795-805		•• WASHER, FLAT, 0.156" ID. (SPN 33452-805)		2
			***		
90	10001572		•• ANEROID - ALTITUDE PRES-SURE SENSING		1
95	10001571		•• BELLOWS ASSEMBLY - PILOT		1
100	2800B2A		•• PACKING, PREFORMED (ALT SPN 19486-00)		1
105	AN316C5		•• NUT, JAM - HEX, 5/16"-24 (SPN 33473-105)		1
110	10001631		•• PIN, PUSH		1
115	28846-01		•• STEM - ALTITUDE COMP.		1
120	10001793		•• SPRING		1
125	800874-00		•• SEAT ASSEMBLY - STEM		1
130	10001635		•• GASKET		1
135	25298-00		•• PLATE - INSTRUCTION		1

- ITEM NOT ILLUSTRATED